Transatlantic Value Chains with Swiss Participation and Rules of Origin:

IS TRADE CREATION DOMINATING TRADE DIVERSION?

Study established on behalf of the State Secretariat for Economic Affairs SECO

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ACRONYMS AND ABBREVIATIONS

ACP	Africa Caribbean and Pacific countries
ARO	Agreement on Rules of Origin
ASEAN	Association of South East Asian Nations
CHE	ISO Country Code for Switzerland
CGE	Computable General Equilibrium
CTH	Change of tariff heading
CTSH	Change of tariff subheading
DCs	Developing Countries
EBA	Everything But Arms
EC	European Commission
EFTA	European Free Trade Association
EPAs	Economic Partnership Agreements
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GSP	Generalized System of Preferences
HS	Harmonized System
ISO	International Standards Organization
MFN	Most Favored Nation
NAFTA	North America Free Trade Agreement
NTB	Non-Tariff Barriers
NTMs	Non-Tariff Measures
OECD	Organization for Economic Co-operation and Development
RoO	Rules of Origin
RTA	Regional Trade Agreement

SECO	State Secretariat for Economic Affairs
SMEs	Small and Medium Enterprises
SPS	Sanitary and Phytosanitary Measure
TOR	Terms of Reference
TRIPS	Trade-Related aspects of Intellectual Property rights
WB	World Bank
WCO	World Customs Organization
WTO	World Trade Organization

Summary

The purpose of this study is to carry out an analysis of the economic impact of the Transatlantic Trade and Investment Partnership [TTIP] on global value chains involving companies located in Switzerland depending on the possible Rules of Origin [RoO] regimes in the TTIP for some specific sectors.

Moreover, the study briefly addresses the impact on Switzerland of the changes that could be introduced in the regulatory regimes of Non-Tariff measures [NTMs], namely Sanitary and Phyto-Sanitary Measures [SPS] and Technical Barriers to Trade [TBT].

The impact of RoO-regimes that could be applied under the TTIP is analyzed for selected sectors/products of greater significance to the Swiss producers:

a) automobiles and their parts, as companies in Switzerland are important suppliers for EU car manufacturers;
b) precision instruments such as medical devices where companies in Switzerland not only produce finished goods but also supply US or EU manufacturers with parts of these products;
c) chemicals/pharmaceuticals.

The study conducts a comparative analysis of RoO regimes to identify those specific RoO having a potential to affect the sourcing policy of firms located in the TTIP area and involved in global value chains – thus, ultimately, generating a possible impact on Swiss suppliers.

For the section on NTMs, a brief analysis is being made of the proposed architecture of the regulatory changes in the current TTIP to show areas where Swiss products might be affected. This section has been designed with the objective to provide an overview of the possible options and avenues that Swiss policy makers may undertake for further investigation in this complex area.

The methodology of this study is based on a twofold approach.

1] Text-based analytical review of the recent EU and US models of RoO regimes to identify those provisions and/or modalities that may affect Swiss producers,

2] Input-output matrix to match trade flows of Swiss inputs used in the EU/US to manufacture finished products for export. This approach has been first developed by Stefano Inama[1] using the Harmonized System (HS) nomenclature to develop an input/output matrix that could be matched with detailed trade flows.

To verify and test the outcome and relevance of the findings which have been emerging from the mentioned analytical process, a series of preliminary contacts with selected representatives of the private sector have been established [resource persons are mentioned in the relevant footnotes]. Yet, there is scope to deepen the analysis with firm-level investigations based on a detailed questionnaire to be run on a series of face-to-face interviews. This exercise would provide useful insights on the sourcing policy of inputs and intermediates

[1] See Inama, *Made in China or Made in Tlon*? The quest for a new origin concept measuring international trade and respecting consumers' rights,2013 Global Trade Analysis Policy (GTAP)

that Swiss producers may use in the manufacture of finished products and/or of parts that can be exported to the EU producers for further assembly into finished products. Such detailed information could also be extremely useful used in other FTA negotiations.

On the basis of the outcome of the study, specific replies are being formulated [Chapter 5 on Conclusions refers] with respect to the following research questions as contained in the Terms of Reference:

I. ***What are the advantages and limitations of modeling rules of origin in the context of TTIP?***

The various FTAs that the EU and US have negotiated with other countries allow a rather exhaustive comparison of the product-specific RoO [PSROs] that the Swiss industry may be confronted with and provide valuable background for modeling rules of origin in the TTIP.

For instance, by comparing the different sets of rules of origin contained in the recent reform of the GSP rules and EU-FTAs, it has been found that the PSROs contained in the EU-Switzerland FTA are more stringent in a number of cases.

II. ***With TTIP, in which sectors will there be***

i. A tendency of EU companies to replace Swiss inputs with US, intra-EU or third country inputs for exports of finished products to the US?

This question is of significance for the automotive products of HS 87 Chapter and precision instruments of HS Chapter 90. These are the products appearing the most exposed to trade diversion effects. This finding is largely dependent on the specific form of PSROs. Pharmaceutical products of HS Chapter 30 and many chemicals of Chapter 29 are not expected to suffer from trade diversion effects due to rules of origin as they are MFN duty free in the US and EU market thanks to an early understanding entered by a Group of WTO Members at the end of the Uruguay Round[2].

and

ii. A tendency of US firms to replace Swiss inputs with EU, US or third country inputs for exports of finished products to the EU?

Such a tendency will be minimal given the combination of trade flows, their nature and the cost of transport in sending Swiss inputs for incorporation in US finished products and re-exported to the EU. US exports to the EU of HS Chapter 30 are MFN duty free and there is no trade diversion incentive. Trade diversion effects could be theoretically imagined for some subheadings of Chapter 29 with the caveat that many tariff lines in HS Chapter 29, chemicals, are MFN duty free in the EU. In HS Chapter 87 most of the US exports to the EU are complete cars. However the value of exports of Swiss parts of cars to the US are rather minimal [around USD100 million], suggesting that these parts are eventually used as parts in the assembly of cars for the US market given the nature of automotive components.

[2] See GATT document of L/7430 of 25 March 1994.

III. ***Which forms of RoO in TTIP, TTIP plus or TTIP mult would most affect trade of Switzerland (trade diversion)?***

PSROs that are restrictive may take two forms: Those PSROs based on a change of tariff classification that do not allow a change of tariff subheading [CTSH] and those that are requiring not to exceed a maximum value of non-originating of 40% out of the ex-works price or 50% of the net cost method calculation. In both cases these PSROs are not conferring origin to assembly operations that could involve Swiss parts into complete articles or finished products.

IV. ***How would a cut back of NTBs [TBT/SPS] in TTIP such as harmonizing/mutual recognition of product regulations affect Switzerland*****?**

Swiss products and inputs that are not aligned with the regulatory measures or the equivalence agreements that will be contained in the TTIP on TBT/SPS may not benefit from entering the TTIP area or may not be used as an input or component of finished products. This is one of the most complex areas in the TTIP. It should be explored as a matter of urgency how equivalence agreements entered by the US and EU in the context of the TTIP deal with the third parties that are adopting the same standards or regulations of one of the parties to the TTIP. Example: Canada or Switzerland that are third parties with respect to TTIP may adopt the same regulations as those adopted by the US or the EU: will these regulations be considered equivalent or is there need for a another equivalence agreement. The current negotiations of the EU–Canada FTA may provide precious guidance on this matter and Swiss policy makers and private sector should closely follow the progress made during such negotiations as they may provide valuable insights on how the EU intends to treat such issues.

V. ***Which inputs would remain unaffected and which ones would benefit in the TBT/SPS area from the trade creation effect of the agreement?***

There is no indication of an intention in the TTIP to create a bilateral hub of regulatory policies limited to the EU and US. The EU initial negotiating position papers are unequivocal in this regard: the ultimate goal is to reach a multilateral outcome in removing regulatory obstacles. Yet it is recognized that this ultimate goal will be reached through greater cooperation and integration efforts at EU-US bilateral level. Hence there might be transitional phases of this integration efforts where third parties like Switzerland may be potentially affected.

To the extent that multilateral disciplines exist or in the cases where the US and EU will decide to make use of existing multilateral channels it is clear that the inputs covered by these multilateral efforts will remain either unaffected or will benefit according to the progress made in these multilateral fora thanks to the US and EU joint efforts.

Both the US and the EU have gradually changed their rather restrictive approach in the design of RoO embraced at the beginning of the nineties with NAFTA and the Pan European[3] model. Significant observations made in the course of this study - ranging from the progressive abandonment of the net cost method in subsequent US FTAs and the diversity of Product Specific Rules of Origin [PSROs] in recent EU FTAs - are revealing of these different ap-

[3] In this study the terminology Pan-European rules of origin is used for ease of reference. In reality there are "Pan-European" rules of origin that are used among EU, EEA, Turkey; and the system of Pan-Euro-Med rules of origin operating between the EU and the States of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) and Turkey and the countries which signed the Barcelona Declaration, namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Authority of the West Bank and Gaza Strip, Faroe Islands.

proaches. The evolution of the US approach to PSROs towards more lenient requirements is evident, especially in the later US-Korea FTA.

The evolution of EU RoO and the reform of the EU GSP rules of origin have led to a paradoxical situation since Switzerland is having less favorable PSROs under the EU-Swiss FTA than the EU GSP rules. While it is true that the favorable cumulation provisions contained in the EU-Switzerland FTA lessen considerably the stringency of the PSROs, it is clear that the PSROs of the EU-Switzerland FTA are less favorable than those of the GSP. This finding calls for the immediate attention of the Swiss policy makers that have already initiated consultations with the EU Commission.

In terms of recommendations, these can be expressed as follows:

> *The Swiss policy makers should continue their consultations with the EU Commission to explore an updating of the EU-FTA PSROs ensuring GSP parity in terms of stringency requirement.*

The combined observation of the trade flows and findings at tariff levels with the PSROs analysis-carried out on specific headings and subheadings in section 3 also points to a further general observation:

In fact, it has been found that a significant part of the products covered by this study are duty-free into the US and EU on a MFN basis. Translating into trade policy terms, this finding reduces the potential trade diverting effects of the TTIP for a considerable amount of Swiss exports to the EU and US, especially for pharmaceutical products of HS Chapter 30 and many product of HS Chapter 29. This overall consideration, however, has to be read in conjunction with the PSROs analysis where it has been found that a number of PSROs negotiated by US and EU, especially in the automotive and precision instruments sectors, may have trade diverting effects. Thus Swiss trade policy makers and the private sector should focus on those PSROs where there might be trade-diverting effects.

> *Bearing in mind that the potential trade diversion effects may not be significant in some sectors, attention should focus on those specific sectors, particularly the automotive and precision instruments sectors, where trade diverting effects may take place for some specific products. The Swiss government should use the findings of this study to carry out a qualitative survey and exchange views at firm level to clearly identify at product and firm level what are the possible implications of TTIP rules of origin. Such a survey could provide invaluable insights that could also be used in other future FTA negotiating scenarios.*

1. INTRODUCTION

1.1. The role of RoO in FTAs and the interface with trade diversion

Rules of origin are clearly at the very core of free trade areas [FTAs] because they ensure that preferential market access will be granted only to goods that have actually been "substantially transformed" within the area, and not to goods that are produced elsewhere and simply transshipped through one of the member countries. In the absence of rules of origin, it would not be possible to discriminate against imports from third countries, so that the significance of regional integration would be drastically diminished.

Traditionally, the main reason for the existence of rules of origin in FTAs is the preoccupation with trade deflection. In a free trade area, each country maintains its own external tariff and commercial policy in relation to the outside trading partners. To the extent to which the tariffs and commercial policy are different with regard to third countries, the incentive exists to import a good through the country with the most liberal import regime and tariffs. In that case, importers and producers will eventually operate minimal transformation and they will, then, re-export the goods towards the countries with the higher tariffs. In substance, this would be equivalent to a tariff circumvention operation.

In the TTIP configuration, only EU and US "originating" products will be traded either duty free or at reduced rate of duty. Thus, only originating products in the FTA will enjoy such tariff free or reduced duty trade [hereinafter FTA treatment] while Swiss originating products that are merely transshipped tough the EU to the US will not enjoy any tariff reduction.

In a FTA like the TTIP, there are two kinds of trade diversion effects. The first effect is the simplest one to be detected and it concerns finished products. As an example, such trade diverting effect is caused by the duty free or reduced duty on an originating finished product exported from the EU to the US and a comparable Swiss finished originating product. As illustrative example a men's suit of synthetic fibres classified in US tariff line 6203.12.20 originating in the EU may be granted duty free entry under TTIP while the same suit if originating in Switzerland will have to pay a duty of 27,3%.

It is obvious that the consumer, assuming that quality and price is equal, will have an incentive to buy the suit originating in the EU since it is more competitive pricewise due to the absence of duties. In reality it may also be that the importer chose to pocket the margin of preference without reflecting the margin of preferences in the consumer prices. Be this as it may, the diverting effects remain the same. In any case , this does not mean that the suit originating in the EU is, in absolute terms, more competitive pricewise than the suit originating in Switzerland or in a third country not member of TTIP since the advantage has been provided by the cut in tariff rather than by the efficiency of production. This trade diversion effect due to a tariff cut is considered suboptimal and trade distorting in economic terms.

The second trade diverting effect is more complicated to detect and measure. It concerns Swiss inputs that may be object of further processing or being incorporated in a finished product in the EU and US to be exported in the respective partner.

The globalization or, rather, the fragmentation of production has generated a series of value chains where the majority of products are rarely produced in one single country. Nowadays, most of the traded products are the results of assembly or processing operations of inputs

originating from different countries. RoO in the TTIP, like in other FTAs, will determine under what conditions an EU or US product containing Swiss inputs or components could be considered originating in the TTIP area and enjoy the FTA tariff treatment.

As a rule of thumb, Swiss inputs used in the manufacturing of finished products in the EU and US would be entitled to FTA treatment only if they have undergone "substantial transformation" when incorporated in a finished product in the EU or US.

As an illustration, suppose that under the TTIP the transformation of fabrics into the men suit mentioned above is origin conferring. Producers of garments in the US and EU will, then, be encouraged to continue to source fabrics from within or from outside the TTIP, including Switzerland, depending on the most competitive supplier, for transformation into ready-made clothing and subsequent export among themselves at duty free or, at a reduced rate of duty.

Alternatively, if the TTIP product-specific rules of origin for the men's suit are requiring that to be originating in TTIP, the use of third country fabric is not permitted and only the use of third country yarn is allowed, producers of garments in the EU and US will be encouraged to start sourcing fabrics from within the EU or US in order to enjoy duty free or reduced rate of duty. However, sourcing fabrics within US and EU may have a trade diverting effect away from the more competitive suppliers based in Switzerland -or elsewhere- since the sourcing switch is made for the purpose of compliance with the RoO requirements and, thus, to qualify for duty free or reduced duty FTA treatment.

Another possible choice for the EU and US producers willing to comply with such a RoO requirement would be to invest in further manufacturing by carrying out the weaving operations from imported yarn.

It is obvious that such trade diverting effects of a given RoO are, from an economic point of view, highly distorting and suboptimal: the RoO, in fact, induces a diverting of the sourcing from the most efficient producer to a less efficient one because of the preferential tariff treatment.

In the worst case scenario, RoO may induce import substitution policies as in the example above where producers of garments may be tempted to set up regional weaving capacity. The combined effects of RoO and FTAs preferential treatment may ultimately works as a subsidy for the producers established within the FTA.

This example is inspired from the yarn-forward rules in NAFTA where garments made in Mexico benefit from the NAFTA tariff preference only provided that the U.S. textile material is being utilized. In a similar fashion, stringent rules of origin in the TTIP may affect Swiss producers of inputs. The more stringent RoO are, the more prevalent trade diversion may become since producers from the integrated area, in our case the TTIP partners, will favour intermediate inputs originating in the EU or in the US to comply with rules of origin requirements, in spite of their potential higher cost in comparison with inputs from countries outside the FTA like Switzerland. Swiss inputs used in the production of finished goods will thus be affected since they may be penalized by the fact that using such inputs may entail not compliance with rules of origin and payment of corresponding MFN rate of duties. This trade diverting effect may take place even in cases where Swiss inputs are more expensive than US or EU inputs but they have been used because of their better quality or match with the final

user specification. In fact the MFN rate of duty for non-compliance with rules of origin may obliterate such quality advantage of these Swiss inputs. Thus, trade diversion will be greater, the higher the preferential margin. This study is focusing on the second type of trade diversion effect, aiming at identifying and depicting the possible trade diverting effects of RoO in the TTIP on the basis of a combined analysis of the RoO disciplines adopted, respectively, in the EU and US, the potential preferential margins and the current trade flows.

1.2. The issue of cumulation

Normally, rules of origin have to be complied within the boundaries of a single country. In the case of TTIP, rules of origin have to be complied within the US or the EU customs territories.

However, the FTAs contain provisions allowing cumulation among the member Parties. Under such cumulation rule, a Party is allowed to consider originating materials in the other Party[ies] as its own materials. Cumulation could be *bilateral*, for instance among the EU and the US in the TTIP, or *plurilateral* like the case of NAFTA, providing for cumulation among the US, Canada and Mexico.

Cumulation could also be *diagonal,* to borrow a term from the Pan Euro-Med rules of origin. Under diagonal cumulation, the Parties to a FTA can also consider as originating products those products that, in fact, originate in countries outside the specific FTA. For instance, Switzerland participates to the Pan-Euro-Med cumulation of origin that is operating between the EU, the States of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland), Turkey and the countries which signed the Barcelona Declaration (namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Authority).

Under such system, Switzerland can consider as Swiss materials the originating materials from all other countries that are participating to the Pan-Euro-Med cumulation of origin when these materials are imported into Switzerland for further manufacturing of a finished product exported to these countries.

Such cumulation regime enters into effect provided that a number of conditions are fulfilled according to Article 4, paragraph 5 of the EU-Switzerland Agreement[4].

> **Article 4**
> ***Cumulation in Switzerland***
> *1. Without prejudice to the provisions of Article 2(2), products shall be considered as originating in Switzerland if such products are obtained there, incorporating materials originating in Switzerland (including Liechtenstein), Iceland, Norway, Turkey or in the Community, provided that the working or processing carried out in Switzerland goes beyond the operations referred to in Article 7. It shall not be necessary that such materials have undergone sufficient working or processing.*
>
> *2. Without prejudice to the provisions of Article 2(2), products shall be considered as originating in Switzerland if such products are obtained there, incorporating materials originating in*

[4] See: Decision No 3/2005 of the EC-Switzerland Joint Committee of 15 December 2005 amending Protocol 3 to the Agreement, concerning the definition of the concept of 'originating products' and methods of administrative cooperation.

the Faeroe Islands or in any country which is a participant in the Euro-Mediterranean partnership, based on the Barcelona Declaration adopted at the Euro-Mediterranean Conference held on 27 and 28 November 1995, other than Turkey4, provided that the working or processing carried out in Switzerland goes beyond the operations referred to in Article 7. It shall not be necessary that such materials have undergone sufficient working or processing.

3. Where the working or processing carried out in Switzerland does not go beyond the operations referred to in Article 7, the product obtained shall be considered as originating in Switzerland only where the value added there is greater than the value of the materials used originating in any one of the other countries referred to in paragraphs 1 and 2. If this is not so, the product obtained shall be considered as originating in the country which accounts for the highest value of originating materials used in the manufacture in Switzerland.

4. Products, originating in one of the countries referred to in paragraphs 1 and 2, which do not undergo any working or processing in Switzerland, retain their origin if exported into one of these countries.

5. The cumulation provided for in this Article may only be applied provided that:

(a) a preferential trade agreement in accordance with Article XXIV of the General Agreement on Tariffs and Trade (GATT) is applicable between the countries involved in the acquisition of the originating status and the country of destination;

(b) materials and products have acquired originating status by the application of rules of origin identical to those given in this Protocol; and

(c) notices indicating the fulfillment of the necessary requirements to apply cumulation have been published in the Official Journal of the European Union (C series) and in Switzerland according to its own procedures.

As stated in paragraph 5 above, the effective operation of the cumulation provision in the Pan- European-Mediterranean cumulation territory is subject to conditionality, more precisely consisting in: 1) the existence of a FTA among Switzerland and the concerned Mediterranean country that, in its turn, must already have a FTA with the EU, and 2) the rules of origin contained in these FTAs are identical.

At the time of this writing, how cumulation will feature in the TTIP is still an *incognito*. Yet, there is likelihood that the partnership will make provision for bilateral cumulation among the US and EU materials. It is also possible that an open door will be maintained in the TTIP for cumulation with those third countries that have signed free trade area agreements with the US and EU - with the obvious candidate being Canada, as a part of NAFTA and currently negotiating a FTA with the EU.

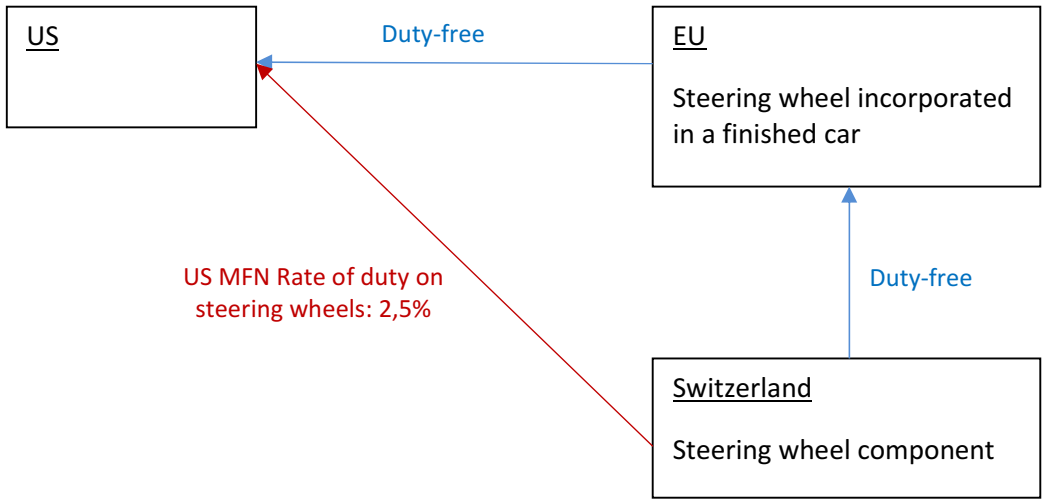
The eventual inclusion of Switzerland in a cumulation scheme under the TTIP is questioned by the fact that Switzerland does not have a FTA with the USA[5]. As outlined above, in the case of the Pan-Euro-Med cumulation, the existence of a FTA among the parties to a diago-

[5] At a present stage it is highly unlikely that cumulation with Switzerland will be part of the TTIP since Switzerland does not have an FTA with US. The trade implications arising from the absence of cumulation with Switzerland in the TTIP is a key trade policy aspect that this study is called to address. Hence the examples here below serve to better illustrate such possible implications

nal cumulation scheme is the necessary precondition for such cumulation to be WTO consistent.

Figure 1 depicts the possible scenarios. Normally, a steering wheel [HS 870894] exported from Switzerland to the US has to face a MFN customs duty of 2.5 % *ad valorem.* Assuming that cumulation with Switzerland is effective in the TTIP - even in the absence of a FTA among Switzerland and the US - Swiss components like a steering wheel could be incorporated into a finished originating car and exported to the US without paying customs duty at the entry into the US market, thanks to the FTA among the US and the EU.

Figure 1 - WTO inconsistency of Diagonal cumulation in the absence of a FTA among Switzerland and the US

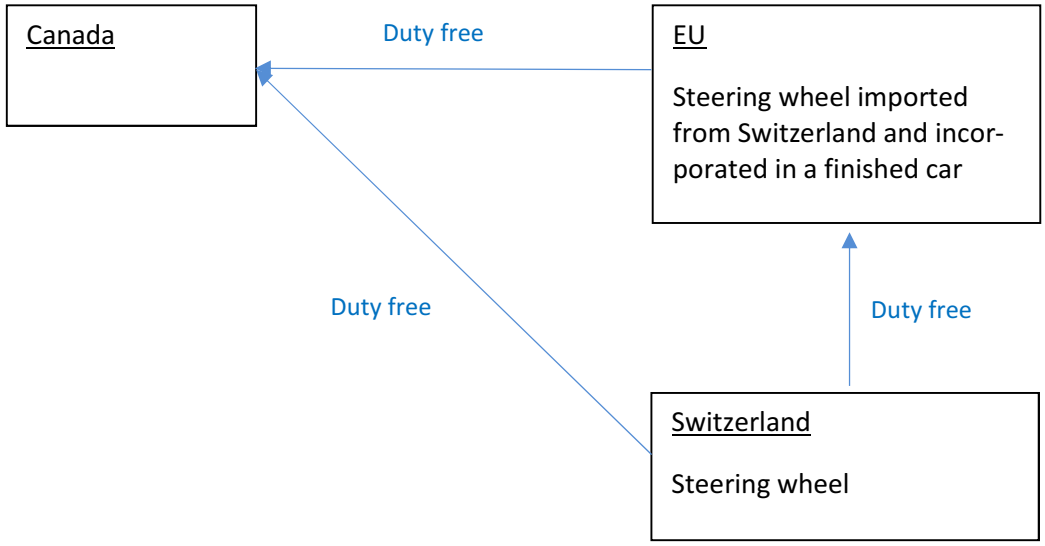


This situation would be equivalent to a tariff circumvent and in breach of art I of GATT 1994.

Moreover, as pointed out in the second requirement of the Pan-European cumulation system, the rules of origin applicable in the FTAs should be identical for cumulation to work properly.

Figure 2 depicts the situation with Canada that has entered a FTA with Switzerland and is finalizing a FTA with the EU. In this case, the first condition for Switzerland having a FTA with the EU and Canada is met. It means that the steering wheel exported by Switzerland can enter into the Canadian market duty free or, at reduced rate of duty either when exported directly or when incorporated into a finished car exported from the EU to Canada. However, the second condition has also to be met, *i.e.* that the rules of origin for the steering wheel have to be the same in both FTA agreements, the one among Canada and Switzerland and the one among the EU and Canada.

Figure 2 - WTO Consistency of diagonal cumulation when Switzerland entered in a FTA



As an illustration, here below four *product-specific* rules of origin for steering wheels classified in Harmonized System sub-heading HS 870894 are reproduced:

Switzerland-Canada FTA[6]

8708.10 to 8708.95

A change from any other heading;

or

A change from within any one of these subheadings

or subheading 8708.99, whether or not

there is also a change from any other heading, provided that the value of the non-originating materials of that sub-heading or subheading 8708.99 does not exceed 50 % of the transaction value or ex-works price of the product

EU-South Korea FTA[7]

8708 to 8711 and 8713 to 8716

Parts and accessories for vehicles of headings 8701 to 8705 and 8711 to 8713; Motorcycles; Works trucks and parts thereof; carriages; baby carriages and parts thereof; Trailers and semi- trailers and parts thereof

Manufacture from materials of any heading, except that of the product

Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product

EU-Swiss Euromed[8]

Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product

EU-GSP rules[9]

Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product

[6] The product–specific rule of origin is set at subheading level for subheading 870894

[7] The product- specific rule of origin is set at heading level for subheading 870894.

[8] The product- specific rules of origin is set at chapter level for subheading 870894 since the list of exceptions to the chapter rule does not single out heading 8708

[9] The product-specific rules of origin is set at chapter level for subheading 870894 since the list of exception, just one in the new EU GSP refers to heading 8711, motor cycles.

As can be easily noted these four product specific rules of origin are different among each other albeit some similarities may be detected. The EU-South Korea and the EU GSP products specific rules of origin are reproduced here since they represent the latest generation of the EU product specific rules of origin. As noted below in section 2.1.2 and 2.1.3 concerning the reform of the EU GSP rules of origin, contrary to the common belief that such reform is limited to the EU GSP rules of origin, the new product specific rules of origin contained in the EU GSP represent the new blueprint from where the EU is considering to negotiate the product specific rules of origin in the new FTAs. Although in the relevant EU documents it is stated that the reform of the EU GSP rules of origin is limited to those rules of origin, the PSROs contained in the EU GSP reform for developing countries is taken as a starting point for the FTAs that the EU is currently negotiating with a number of partners. This fact is not expressly written anywhere except from oral EU sources. Be this as it may this finding is demonstrated by the fact the recent EU FTAs like the EU–Singapore FTA are containing PSROs that are inspired to the EU GSP PSROs for developing countries. In addition during the recent EU-Vietnam negotiations on rules of origin, the EU has taken as initial negotiating position PSROs that are largely inspired to the PSROs contained in the EU GSP[10].

The comparison among the EU-Swiss FTA and the EU-South Korea FTA and the EU GSP rules of origin shown above is a telling example. The EU-CH products specific rules of origin dates from 2005 when the EU reform started and requires to comply with a threshold of 40% on non-originating materials out of the ex-works price of the finished product. Under the new EU GSP rules of origin such threshold has been elevated to 50 %.Thus Developing countries beneficiaries of the GSP scheme, a unilateral preferential scheme, are enjoying more lenient product specific rules of origin than the Swiss exporters under the EU-Swiss FTA[11].This is contrary to past practice where GSP product specific rules of origin for GSP beneficiaries were equal or more restrictive than those used under EU FTAs. In a word the reform of the EU GSP rules of origin has made the product-specific rules of origin under the EU-Swiss FTA less favorable that those granted to GSP beneficiaries.

In a similar vein the product specific rules of origin of the EU-South Korea for automotive products, a notable sensitive issue, are more liberal than those under the EU-Swiss FTA allowing up to 45% to 50% of non-originating materials. Once again this is a sign of a new trend on negotiating product specific rules of origin that has taken the EU-GSP rules of origin as a new benchmark.

1.3. Some reflections on the potential impact of extended cumulation in EU FTAs and the US TTP negotiations

Quite differently from the US practice, the EU has consistently promoted the idea of cumulation to establish regional hubs where diagonal cumulation is allowed among the different partners. The Pan-Euro-Med cumulation system is an eloquent demonstration of this trend. The GSP reform of rules of origin and the recent EU FTAs entered with Asian countries such as Singapore, South Korea contains elements indicating that such trend is continuing in the new generation of FTAs rules of origin.

[10] As emerged during latest unofficial discussions with EU practitioners and EU sources in April 2014.

[11] This statement is limited to requirements under product specific rules of origin since cumulation under Pan – European and Euro-Med Protocols of rules of origin lessen considerably the stringency of the product specific rules of origin.

First the EU GSP rules of origin introduced the innovative concept of extended cumulation whereby a GSP beneficiary can cumulate with countries that have entered with FTA with the EU[12], second the provisional text[13] of the EU Singapore FTA provides explicitly for cumulation among ASEAN countries and the EU. At the time of writing it remains to be seen if the other FTAs that the EU is negotiating, most importantly with Canada and Japan feature the issue of cumulation and how. The US FTAs agreements signed with individual countries like Colombia, Peru, Singapore[14] does not feature diagonal cumulation with other countries non- member of the individual FTA.

The question for the future is how cumulation will feature in the TTIP among EU, US and the third countries that have FTAs concluded with US and EU. This is of fundamental importance to the Swiss producers of intermediate inputs since in a scenario where diagonal cumulation is allowed among the different FTAs the potential trade diversion effects may be considerable greater that those under the TTIP where cumulation is limited among US and EU. Negotiations on the Trans Pacific partnership [TPP] Agreement are on-going and at the time of this writing the draft text are not publically available. It is not clear whether the US and its partners would be interested in opening the possibility of expanding diagonal cumulation in a TTIP-TPP or TTIP-TPP- Plus fashion.

This is clearly an area where Swiss policy makers and private sector should pay immediate attention and monitor the on-going TTIP and TPP negotiations. In the case where extended cumulation is a feature appearing in TTIP and TPP trade diversion will be greater and Switzerland will be outside the network. Negotiations of a US-Switzerland FTA would be necessary precondition to become part of such cumulation scenario.

[12] There are a series of limitation and procedures to be followed for the extended cumulation. See Inama The Reform of the EC GSP Rules of Origin :*Per aspera ad astra ?* JWT, 45, no. 3 (2011): 577–603 and Commission Regulation No. 1063/2010 of 18 Nov. 2010 amending Regulation (EEC) No. 2454/93 laying down provisions for the implementation of Council Regulation (EEC) No. 2913/92 establishing the Community Customs Code.

[13] Available at http://trade.ec.europa.eu/doclib/docs/2013/september/tradoc_151773.pdf, September 2013

[14] See for instance paragraph [f] of the US-Singapore FTA: *Accumulation.*

(i) For purposes of this note, originating materials from the territory of either Singapore or the United States that are used in the production of a good in the territory of the other country shall be considered to originate in the territory of such other country.

(ii) A good is an originating good when it is produced in the territory of Singapore or of the United States, or both, by one or more producers, provided that the good satisfies all of the applicable requirements of this note

2. THE US AND EU RESPECTIVE WAY AND EXPERIENCE OF DRAFTING RULES OF ORIGIN

The U.S. approach and experience with drafting and administering preferential rules of origin differ widely from the European Union, mainly depending on the different trade policies and economic relations the two unions have embarked upon with their respective third country parties.

2.1. The EU experience in drafting rules of origin in FTAs

Drawing upon the EU Member States' relations with former colonies and the preferential trade arrangements in place, the EU practice of preferential rules of origin has been consistent since the adoption of a basic set of rules of origin early in the seventies.

At the outset of the EU rules of origin, the main common characteristic of the EU preferential rules of origin has been the adoption of the change of tariff heading criterion (CTH) in defining the concept of "substantial transformation" coupled with a list of product-specific rules of origin, requiring CTH with or without exceptions, specific working or processing or maximum import content percentages. This approach has been later replaced by the adoption of an exhaustive list of product –specific rules of origin covering all products and using a variety of methodologies in defining substantial transformation as listed above. Albeit with notable differences, such ways of drafting rules of origin has remained unaltered throughout the years.

This adoption of the CTH as method of defining substantial transformation even if in combination with other methodologies used in product-specific rules distinguished for many years the EU practice from the one adopted by the United States and Canada in autonomous preferential arrangements such as their GSP or the Caribbean Basin Initiative (CBI). In fact, under these latter unilateral preferences, the US rules of origin consisted on an across-the-board percentage criterion.

This simplicity in dealing with preferential rules of origin in the US administration took a dramatic change when the US- Canada free-trade area and, later, NAFTA rules of origin were negotiated.

The apparent consistency of the EU policy towards origin did not necessarily mean that the EU adopted a single set of rules of origin for all the preferential arrangements it entered into with third countries. On the contrary, given the a general use of mix of CTH with or without exceptions, percentage requirements and specific working or processing articulated in product-specific rules' common starting point, the EU's trade policy on rules of origin has traditionally been as different and complex as its agreements with third countries. In fact, rules of origin have been one of the preferred policy instruments adopted by the EU in modulating and tailoring according to its priorities the content of the concessions contained in the trade agreements with third countries.

In contrast to this traditional approach that lasted for almost three decades, the progressive enlargement of the EU generated the first drastic changes on EU policies on rules of origin.

A communication by the Commission of 30 November 1994 introduced a new policy towards rules of origin[15] by progressively adopting a uniform set of rules of origin commonly referred a "Pan-European Rules of Origin." According to this Communication, the EC started to revise and substitute the old protocols on rules of origin annexed to the Europe Agreements with standard protocols, that have been utilized to negotiate rules of origin protocols with South Africa, the Mediterranean countries, and was gradually applied to all the other trading partners benefiting from tariff preferences, including GSP and Cotonou Partnership Agreement. FTAs with Mexico and Chile have also been negotiated using this standard set of Pan-European rules of origin.

The Pan-European rules of origin regulated all trade relations conducted under the Former Europe agreements with Central and Eastern European countries for more than a decade. The concept of Pan-European rules of origin was extended to the Mediterranean countries, those with whom the EU launched the Barcelona process in 1995 for the creation of Euro-Mediterranean Free Trade Area by 2010.The progressive enlargement of the EU meant that the scope of the Pan-European rules of origin has been progressively replaced by the Pan-Euro Mediterranean cumulation of origin. The actual system of Pan-Euro-Med cumulation of origin is the extension of the previous system of Pan-European cumulation. It operates between the EU and the States of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) and Turkey and the countries which signed the Barcelona Declaration, namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Authority of the West Bank and Gaza Strip[16].

Curiously enough, almost at the same time of the implementation of the process of adopting a Pan-European rules lasting almost a decade, the "*Green Paper on the Future of Rules of Origin in Preferential Trade Arrangements*"[17] paved the way for a gradual re-thinking of the of EU preferential rules of origin and a reforming process within an immediate future. According to this communication, the review of the EU rules of origin was not originally meant to be touching upon the intrinsic substance of the rules, whilst it did in its actual format outcome. At the beginning of the process, the review appeared to be rather heavily focused on the management aspects and procedures in relation to the administration of the rules of origin. In particular, the issuance and verification of the origin certification were the issues at stake, along with the role being played by importers, exporters and certifying authorities closely examined in the Green Paper.

[15] Communication from the Commission to the Council, concerning the unification of rules of origin in preferential trade between the Community, the Central and East European countries and the EFTA countries, SEC (94) 1897 FINAL.

[16] Actually the effective implementation of the Pan-Euro-Med cumulation is dependent on a number of conditions ,basically those outlined above under section 1.2.There are also significant variations in the scope of cumulation and drawback provisions depending on the countries concerned

[17] Communication from the Commission to the Council The rules of origin in preferential trade arrangements Orientations for the future Brussels, 16.3.2005COM(2005) 100 final

2.1.1. The relevance of the reform of the EU rules of origin for the TTIP: from the GSP rules of origin to where?

On 1 January 2011, a new regulation on EC Generalized System of Preferences (GSP) rules of origin (hereinafter 'the Regulation') came into force, ending a reform process that was initiated by Green Paper of 2003 on the future of rules of origin in preferential trade arrangements, and the 2005 Communication entitled *'The rules of origin in preferential trade arrangements: Orientations for the future'.*

The new EU rules of origin contained in the regulation herald a new era: they are far more liberal than the previous one, with the notable exception of fishery products and processed agricultural food. The regulation also introduces a new administration of rules of origin whereby origin declarations are made by registered exporters upon their submission of necessary application to the certifying authorities and maintained in a database. This new system will be introduced after a transitional phase lasting until 2017.

As stated above under section 1.2 there is a common belief that the reform of the GSP rules of origin is limited and confined to the GSP rules. As demonstrated in recent developments and most notably by the recent FTAs entered by the EU with South Korea and with Singapore[18], the EU GSP rules of origin have largely influenced the product specific rules of origin in these recently negotiated FTAs. Thus the analysis of the underpinnings and evolution of the EU GSP rules of origin as later evolved in the most recent FTAs may provide significant insights on the negotiating stand that the EU may consider when negotiating the TTIP.

Suffice here to recall that, as mentioned in section 1.2 above the first implication of the GSP reform is that many product specific rules of origin contained in the EU-Swiss FTA are now obsolete with respect to the product specific rules of origin of the EU GSP rules of origin. As outlined below in section 2.1.3, a cursory glance to the product specific rules of origin negotiated by the EU in the EU –South Korea and EU Singapore FTA.

As mentioned above the EU started a first revision of the rules of origin in 1993 when the Pan-European rules of origin were conceived following the signing and entering into force of the Europe Agreement with Eastern and Central European countries. The adoption of the system of Pan-Euro-Mediterranean cumulation of origin by the Council of the European Union (EU) on 2005 marked the end of this process.

Almost at the same time, the Green Paper on the Future of Rules of Origin in Preferential Trade Arrangements (hereinafter 'Green Paper') opened the way for a reform of EU preferential rules of origin. According to this communication, the review of the EU rules of origin was not meant to immediately touch the substance of the rules of origin contained in the product-specific list rules. In fact, the original plan of the reform was heavily focused on the management procedures elated to the administration of the rules of origin. However the final result of the reform marked a significant liberalization of the EU rules of origin.

The Commission, rather than addressing the restrictiveness of the rules of origin, was mainly concerned that, following a stream of the European Court cases, the existing system based

[18] The text of the Protocol on rules of origin is available at http://trade.ec.europa.eu/doclib/press/index.cfm?id=961

on the authorities of beneficiary countries to certify the origin of products was leading to a loss of Community-owned resources. According to the existing system where the declared origin proves to be incorrect, importers frequently may not have to pay duty because they acted in good faith and an error was made by the competent authorities in beneficiary countries. Under these circumstances, the EC suffered a double jeopardy: First, a loss of customs revenue and second, this was due to a misinterpretation of EC rules by the certifying authorities in beneficiary countries

2.1.2. The major changes and improvements in the GSP rules of origin

With respect to the previous EC Regulation on GSP rules of origin, the following changes have been introduced in these three areas in order of practical importance:

– **Changes in product-specific rules of origin** introducing more lenient criteria for a number of sectors, especially for LDCs. The new regulation introduces a differentiation among developing beneficiary countries and LDCs that did not exist before. In a number of HS chapters and headings, especially in the textile and clothing sector and also in machinery and electronics, more lenient rules of origin are set for developing countries and LDCs. For developing country beneficiaries, in the clothing sector the double transformation (weaving and making-up) is still in place but the dying process has been recognized as a processing requirement. In the case of LDCs, the double processing has been replaced with a single processing requirement (making-up), a major improvement argued for years by LDCs.

In machineries of Chapter 84 and electronics of Chapter 85, the chapter rule previously requiring a CTH and a maximum allowance of non-originating materials of 40% out of the ex-works price has been replaced with a CTH or a maximum allowance of 70% of non-originating materials out of the ex-works price for developing countries and LDCs alike. [at times 50% for Developing Countries]

More complex is the analysis in the agricultural and processed agricultural products: in some chapters with high most favoured nation (MFN) duties like Chapter 15, the rules of origin have been substantially liberalized, in others, like Chapter 4, dairy products, limits concerning the use of non-originating sugar have been introduced at chapter level while the use of non-originating fruit juices previously restricted for yogurt has been liberalized.

There are also a number of technical improvements to the rules of origin where, in certain cases, the tolerance rule is expressed a percentage of weight rather than value. The tolerance rule has been generally raised from 10% to 15% and could also be applied to the wholly obtained product when the origin requirement is used as a product-specific rule of origin criterion.

– **Cumulation of origin**: regional cumulation has always been featured in the EC GSP rules of origin. Mercosur has been added as new entity benefiting from regional cumulation. The rule for the allocation of origin among the different members of a regional organization has been relaxed. Under the previous regulation, the origin was conferred to the country of last manufacturing only if the value added was greater than the customs value of the imported inputs from other country member of the regional organization. In practical terms, it meant that a Cambodian producer wishing to use fabrics originating in Thailand was not obtaining Cambodian origin since the value of the fabrics was greater than the value added achieved in Cambodia. In the new Regulation, this requirement has been lifted provided that the inputs

originating in the other members of the regional group have undergone working or processing going beyond minimal working processing operations. Some agricultural and fishery products are excluded from regional cumulation.

In addition, a new type of cumulation is introduced: extended cumulation. Such cumulation may be applied between GSP beneficiary countries and EU Free Trade Agreement partner countries under certain conditions further explained below. However, agricultural products classified in Chapters 1–24 of the HS are excluded from extended cumulation.

– **The reform drastically changed the EC administration of rules of origin providing a transitional period until 2017 and beyond**. The current system of certification of origin based on certificate of origin *Form A* officially stamped by the certifying authorities will be replaced by statements on origin to be given directly by registered exporters. A database will have to be established in each beneficiary to be administered and updated by the authorities of the country concerned. This new administration will entail a drastic change of business practices for the certifying authorities of beneficiary countries who will be responsible to maintain and administer the database. Only exporters registered in the database could issue statements of origin for receiving trade preferences. The current system will remain in place until 2017 with a provision for extension until 2020 for beneficiaries asking for additional transitional period.

2.1.3. Beyond the EU GSP reform to the latest generation of the FTAs

Albeit the EU reform started with the desire to reform the GSP rules of origin its ultimate result has been an overall re-thinking of the EU policy in negotiating rules of origin in FTA that may have significant implications for the design of rules of origin in the TTIP. Obviously there are other trade policy considerations and dynamics of the EU trade policy that has determined such a change.

It is now a fact that the EU has abandoned the idea of presenting a single protocol of rules of origin and product specific rules of origin [PSROs] to all the FTAs partners as it has been the case in the nineties under the Pan- European rules of origin system. The product specific rules of origin contained in the EU-South Korea and EU –Singapore are different as much as the scope of cumulation provided therein. Reportedly the rules of origin of the EU-Vietnam FTA have taken the GSP rules of origin for Developing countries as a benchmark.

The design of product specific rules of origin under the latter FTA agreements show the influence of the EU reform of GSP rules of origin, especially in the percentage requirements and the fact that as under EU GSP rules of origin the specific requirement are no longer cumulative as in the case of the EU-Swiss FTA but alternative. The overall result is that the new rules that are significantly more lenient in a number of chapters that are of key importance for Switzerland[19].

[19] Actually a definitive answer may only be provided by a close analysis contrasting preferential margins, trade flows and products specific rules of origin of the different countries under the specific agreements.

Brief Comparison of selected product specific rules of origin for chapter 90 Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus

EU-Swiss	EU -GSP	EU –South Korea	EU Singapore
Manufacture: – from materials of any heading, except that of the product, and – in which the value of all the materials used does not exceed 40 % of the ex-works price of the product **Or** Manufacture in which the value of all the materials used does not exceed 30 % of the ex-works price of the product	Manufacture from materials of any heading, except that of the product or Manufacture in which the value of all the materials used does not exceed 70 % of the ex-works price of the product	Manufacture from materials of any heading, except that of the product ***or*** Manufacture in which the value of all the materials used does not exceed 45 % of the ex-works price of the product	Manufacture from materials of any heading, except that of the product **or** Manufacture in which the value of all the materials used does not exceed 60% of the ex-works price of the product
Heading rules for 9027[20] Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product	As above	Manufacture from materials of any heading, except that of the product *or* Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product	As above

Obviously some of these changes may also be due to the dynamics of the negotiations. Be this as it may it has to be acknowledged that there is a pressing need to rejuvenate the PSROs of the 2005 protocol of the EU- Switzerland agreement. Moreover the dynamics of the latest FTA negotiations provide strong indications that the EU has abandoned in its recent FTAs "*the one size first all"* approach adopted under the former Pan- European rules of origin.

EU FTA rules of origin negotiations are progressively showing a grated degree of flexibilities in the way rules of origin are drafted that have no precedent in former EU practices. The EU-Canada and ultimately the TTIP PSROs will most likely be the new frontier. Yet it is difficult to predict how and where the border of such frontier will be finally drawn up.

[20] Heading 9027 classify a number Instruments and apparatus for physical or chemical analysis, in particular Switzerland is exporting to the EU 278 million USD according to trade statistics of 2011 of subheading 902790 Microtomes; parts and accessories.EU MFN rates of duty ranges from duty free to 2.5% *ad valorem*

2.2. The US experience in drafting rules of origin in FTAs

Until the beginning of the 1990s, the United States had few bilateral agreements and preferential tariff relations were centered around the GSP, the Caribbean Basin Initiative, the Andean Trade Preferences, and the US-Israel Free Trade Area. At that time, the U.S. preferential rules of origin were based on the US-GSP rules of origin requiring an across the board percentage criterion of 35 percent[21].

A first rather drastic change in this simple approach to preferential rules of origin occurred when the U.S.-Canada Free-Trade Area Agreement was negotiated. At that time, the trade volume involved and the subsequent emergence of powerful lobbies during the negotiations demanded a higher degree of discipline and specificity in setting up the Rules of origin. The U.S.-Canada featured product-specific rules of origin, that, during the NAFTA negotiations, rapidly evolved in one of the most sophisticated and detailed origin regime yet devised at that time.

As one commenter described[22] the CUSFTA contained 1,498 separate rules of origin spread among the 20 pages of the relevant annex to the FTA[23].There is no public count of the number of separate rules of origin in the NAFTA, but the number of pages in the relevant annex (Annex 401) listing the specific rules is 148 (pp. 2–150) and it is notorious fact the NAFTA rules were more restrictive and specific that the ones under CUSTFA[24].

One of main reasons generating the complexity and the level of detailed discipline of the NAFTA rules, was the much-publicized fears of loss of North American jobs during NAFTA negotiations. These fears were partly based on the belief that North American industries would relocate in low-cost Mexico to obtain preferential access and compete with domestic industries in North America. In general, when forming a free trade area with a developing country, developed countries that already have a strong industrial basis, fear the trade deflecting or de-localization effects of liberal rules of origin more than they value – as exporters – their potential trade-creating effect. This fear prompted U.S. domestic producers to press for finely tuned rules of origin in, for instance, automobiles[25], textile and toy-manufacturing industries and color picture tubes.

Much of the complexity of NAFTA derived partly from the technical choices made during the negotiations to adopt a tariff-shift approach and partly from the intensity of lobbying and involvement of the specific industrial sectors. These two factors are closely intertwined. In drafting rules of origin there are a series of technical options, which may be pursued in de-

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[21] For a discussion on the US GSP and Caribbean rules of origin, see, Palmeter, D. "Rules of origin or rules of restriction? A commentary on a new form of protectionism, *Fordham International Law Journal*, Vol. 1, number 1,1987 and Handbook on US GSP Scheme including features of the AGOA, UNCTAD, 2003

[22] Palmeter D. "Rules of origin in Regional Trade Agreements" in Regionalism and Multilateralism after the Uruguay Round, Convergence, Divergence and Interaction, European Interuniversity press, Brussels, 1997.

[23] See, Palmeter D., "The FTA rules of Origin: Boon or Boondoggle," in DEARDEN, HART & STEGER (eds), Living with Free Trade: Canada, the Free Trade Agreement and the GATT, Institute for Research on Public Policy and Centre for trade Policy and Law, Ottawa, 1989, 41, 47

[24] See, Estedeavordal, A and D. Miller, "Rules of origin and the pattern of trade between US and Canada," Integration, Trade and Hemispheric issues Division, Inter-American Development Bank, 2002

[25] See Jonathan Cooper, "NAFTA rules of origin and its effect on the North American automotive industry in the North-West," *Journal of International Law and Business*, vol. 14, no. 2, winter 1994. See also Joseph A. La Nasa III, "Rules of origin under the North American Free Trade Agreement: A substantial transformation into objectively transparent protectionism," *Harvard International Law Journal*, vol. 34, no. 2, 1993.

termining when "substantial transformation" occurs[26]. By adopting the "tariff shift" as main criteria for determining origin the negotiators implicitly opted for product-specific rules of origin given the inherent structures of the HS. This rendered rules of origin susceptible to capture by industries interested in minimizing their exposure to competition[27].

The United States was not the first country to utilize the harmonized system as main criteria to determine origin. In fact, for more than two decades the main general criteria of the EU was the change of tariff heading criteria (CTH) until the introduction of the Pan-European rules of origin. However the general criteria based on a CTH requirement was coupled with a list of product-specific rules that was around 70 pages long. For the products falling in this list the respective product-specific rules applied instead of the general criteria based on CTH.

The main difference in the utilization of the harmonized system for rules of origin purposes between the United States and the EU resides in the level of detail or disaggregation of the HS that occurs in NAFTA and to NAFTA similar rules of origin. Such difference in the design of rules utilizing the full codes at six digit level and in some cases at tariff lines level in the case of NAFTA is one of the major difference between the U.S. and EU model remaining valid to-day even in the case of the Pan-European rules of origin. The experience that the U.S. has gained with NAFTA and change of tariff classifications techniques has largely influenced the Harmonized Work Program HWP under the Agreement on Rules of Origin ARO.

As it has been pointed out earlier the EU utilizes a number of different techniques when drafting rules of origin ranging from specific working or processing to maximum import content and the change of tariff classification based on the Harmonized System. However, the design and drafting of the rules of origin utilizing the Harmonized system in the EU has been always done at heading level (four digits) and never at subheading (six digits) or national line level (see the tariff items in NAFTA) as was the case for NAFTA.

NAFTA negotiators negotiated and utilized the full disaggregation at six-digit level of the HS and even recurred in certain products to use national lines at eight-digit level. This entailed that concordances were to be made among the different national tariff lines (tariff items in NAFTA jargon). Since national tariff lines changes on a yearly basis a complex exercise of concordances had to be repeated every year by Customs officers.

In spite of their unprecedented complexity some commentators and users perceived NAFTA rules of origin as rather user friendly. They argued that the extensive use of the HS made rules of origin predictable and transparent even to the private sector.

Undoubtedly, both in legal and economic literature on rules of origin, NAFTA rules of origin created a watershed in terms of complexity and implication deriving from their use and application. It is, therefore, not surprising that NAFTA implementation by Canadian and U.S. administrators was in many respects a learning ground and that the post NAFTA period gradually generated changes in the North American attitude towards preferential rules of origin.

NAFTA rules have also evolved as demonstrated by the recent revision to the NAFTA rules and the negotiations of FTAs with Central America, Colombia, and Peru.

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[26] For a summary on drafting rules of origin see WCO bulletin, october 2013

[27] Palmeter, see supra

In comparison with the EU, the United States has maintained within the overall architecture of NAFTA style rules a distinct degree of flexibility to better customize the origin rules of the FTAs to the trade patterns and volumes of the partners. This tendency is also reflected in the relative importance given to cumulation in the U.S. FTAs. In the EU context, cumulation has been perceived as a major factor in liberalizing rules of origin and stimulating intra- regional trade. In the recent FTAs that the U.S. has recently entered with Latin American countries there are no plans of establishing cumulation among Latin American countries. It follows that there is no insistence by the U.S. as it is the case in the EU when negotiating with partners to use identical rules of origin in different trade agreements.

2.3. The main criteria for determining origin in NAFTA[28] and EU

According to the original NAFTA text there are four ways in that goods generally meet the NAFTA rule of origin, and therefore qualify for NAFTA tariff preference[29]:

1. Goods "wholly produced or obtained" in the NAFTA region, i.e., they contain no non-NAFTA material;
2. Goods containing non-originating inputs, but meeting the product-specific origin rules;
3. Goods produced in the NAFTA region wholly from originating materials, i.e. produced from materials that may contain non-NAFTA materials, but these materials have met the NAFTA rule of origin;
4. Unassembled goods and goods classified in same (HS) Harmonized System category as their parts, that do not meet product-specific origin rules, but contain sufficient North American regional value content (Goods qualify in this category only in very limited circumstances).

- Goods falling under 1 above respond although with significant variations to the usual list and concept of wholly obtained products used in the Kyoto convention and in the EU rules of origin:

a) a mineral good extracted in the territory of one or more of the NAFTA countries;
b) a vegetable or other good harvested in the territory of one or more of the NAFTA countries;
c) a live animal born and raised in the territory of one or more of the NAFTA countries;
d) a good obtained from hunting, trapping or fishing in the territory of one or more of the NAFTA countries;
e) fish, shellfish or other marine life taken from the sea by a vessel registered or recorded with a NAFTA country and flying its flag;
f) a good produced on board a factory ship from a good referred to in paragraph (e), where the factory ship is registered or recorded with the same NAFTA country as the vessel that took that good and flies that country's flag;

[28] The examples and other material in this chapter have been excerpted from Memorandum D-11-5-1 NAFTA as revised in 2003.

[29] If the good is an agricultural good, as defined by the NAFTA, then exporters must ensure that their goods qualify under the special criterion for agricultural goods. Exporters should review the NAFTA definition of an "agricultural" good. Processed foods, often not considered an agricultural product, fall within the NAFTA definition of agriculture, as does raw natural fibers (silk, cotton, etc.) and fur skins.

g) a good taken by a NAFTA country or a person of a NAFTA country from or beneath the seabed outside the territorial waters of that country, where a NAFTA country has the right to exploit that seabed;
h) a good taken from outer space, where the good is obtained by a NAFTA country or a person of a NAFTA country and is not processed outside the territories of the NAFTA countries;
i) waste and scrap derived from (i) production in the territory of one or more of the NAFTA countries, or (ii) used goods collected in the territory of one or more of the NAFTA countries, where those goods are fit only for the recovery of raw materials; or
j) a good produced in the territory of one or more of the NAFTA countries exclusively from a good referred to in any of paragraphs (a) through (i), or from the derivatives of such a good, at any stage of production.

- Goods falling under (2) are the large majority of products and NAFTA provides basically for a product -specific list where certain requirements have to be met

  a) Change of tariff classification
  b) A change of tariff classification and a regional value content
  c) A regional value content.

- Goods falling under three concerns goods that are considered originating if they are produced entirely in one or more NAFTA country using only originating materials. This provision encompasses goods made of parts and materials that meet NAFTA Rules of Origin, even though containing some non-North American inputs.

- If a product fails to qualify under product-specific tariff-shift rule of origin – under two limited circumstances – it may qualify under a regional value content requirement, even if the product-specific rule of origin in annex 401 does not contain regional value content provisions. These provisions never apply to products classified in HS chapters 61–63 (apparel and other made-up textiles items such as blankets, linens, and bags). These two circumstances are applicable when the good is produced entirely in the territory of one or more of the NAFTA countries, but one or more of the non-originating materials provided for as parts under the HS that are used in the production of the good does not undergo a change in tariff classification because:

  - The good was imported into North America in an unassembled or disassembled form, but was classified as an assembled good under the HS system.

  Parts and final products are classified in the same heading or subheading (as long as the description of the HS heading for the good provides for and specifically describes both the good itself and its parts and is not further subdivided into subheadings, or the subheading for the good provides for and specifically describes both the good itself and its parts).

  - The goods are produced using materials imported into a NAFTA country that are provided for as parts according to the Harmonized System, and those parts are classified in the same subheading or undivided heading as the finished goods.

As it can be easily imagined the major part of the good fall under category (2) since the majority of products are nowadays containing non-originating inputs. Here in the following section some examples with explanatory comments are provided in order to better realize the technicalities involved and the substance of the NAFTA rules:

Products: Breads, pastries, cakes, biscuits (HS 1905.90) Non-North American input: Flour (classified in HS chapter 11), imported from Europe.

Rule of Origin: "A change to heading 1902 through 1905 from any other chapter."

Explanation: For all products classified in HS headings 1902 through 1905, all non-North American inputs must be classified in an HS chapter other than HS chapter 19 in order for the product to obtain NAFTA tariff preference. These baked goods would qualify for NAFTA tariff preference because the non-originating are classified outside of HS chapter 19. (The flour is in chapter 11). However, if these products were produced with non-originating mixes, then these products would not qualify because mixes are classified in HS chapter 19, the same chapter as baked goods.

The EU practice in setting the main rules of origin in the Protocol attached to the FTAs is less complicated than NAFTA.

Commonly[30] an article of the Protocol on rules of origin specifies the general requirements:

General Requirements

For the purposes of this Agreement, the following products shall be considered as originating in a Party:

a) *products wholly obtained in a Party within the meaning of Article 4; and*
b) *products obtained in a Party incorporating materials which have not been wholly obtained there, provided that such materials have undergone sufficient working or processing in the Party concerned within the meaning of Article 5*[31].

The key concept of sufficient transformation is generally expressed as follows:

For the purposes of subparagraph (b) of Article 2 (General Requirements), products which are not wholly obtained are considered to be sufficiently worked or processed when the conditions set out in the list in Annex B or B(a) to this Protocol are fulfilled[32].

In the EU practice there are no more specific articles or provision other than the above about the main general criteria to obtain originating status as in the case of NAFTA. Normally the article defining the criteria for sufficient working or processing operations makes an explicit reference to the annex where the PSROs are contained. The same article [in the case of the EU-Singapore agreement article 5] contains provisions for the value tolerance further discussed in the following section below and the absorption principle discussed in section 2.3.2.

[30] The EU-Switzerland Agreement is not used as an example in this context given its special feature with the European Economic Area (EEA)
[31] Excepted from the EU-Singapore FTA as available in Internet at http://trade.ec.europa.eu/doclib/press/index.cfm?id=961
[32] Paragraph 1 of article 5 of the EU –Singapore FTA

2.3.1. De Minimis (US) or value tolerance (EU)

The value tolerance rules adopted by the EU has been modernized by the GSP rules of origin mentioned above that have been used almost *verbatim* in paragraph 2 to 5 of the article 5 of the protocol on rules of origin contained in the EU- Singapore FTA:

3. By way of derogation from paragraph 1 and subject to paragraphs 4 and 5, non-originating materials which, according to the conditions set out in the list in Annex B or B(a) to this Protocol, are not to be used in the manufacture of a given product may nevertheless be used, provided that their total value or net weight assessed for the product does not exceed:

(a) ten percent of the weight of the product for products falling within Chapters 2 and 4 to 24 of the Harmonized System, other than processed fishery products of Chapter 16;

(b) ten percent of the ex-works price of the product for other products, except for products falling within Chapters 50 to 63 of the Harmonized System, for which the tolerances mentioned in Notes 6 and 7 of Annex A to this Protocol, shall apply.

4. Paragraph 3 shall not allow to exceed any of the percentages for the maximum content of non-originating materials as specified in the list in Annex B to this Protocol.

5. Paragraphs 3 and 4 shall not apply to products wholly obtained in a Party within the meaning of Article 4 (Wholly obtained products). However, without prejudice to Article 6 (Insufficient Working or Processing) and paragraph 2 of Article 7 (Unit of Qualification) the tolerance provided for in those paragraphs shall nevertheless apply to the sum of all the materials which are used in the manufacture of a product and for which the rule laid down in the list in Annex B to this Protocol for that product requires that such materials be wholly obtained.

As in the case of the Pan-European rules of origin the NAFTA rules of origin are providing for *de minimis* rules. In fact, the reliance of the NAFTA rules of origin on a change in tariff classification provides scope for introduction of such rules. A change of tariff classification requires that all non-originating materials undergo the required change. It follows that even a very low percentage of the materials may disqualify goods from originating status. NAFTA contains a *de minimis* provision that allows goods to qualify as originating provided such materials are not more than a certain percentage (7 percent in most cases) of the transaction value of the goods adjusted to an FOB basis or, in some cases, of the total cost of the goods.

In addition, where failure of materials to undergo a required change in tariff classification triggers a requirement for a minimum regional value content, the calculation of that content is waived if the value of all non-originating materials used in the production of the goods is not more than the specified *de minimis* amount.

However, if after application of the *de minimis* allowance the goods must still meet a regional value-content requirement in order to qualify as originating (that is, if the value of all non-originating materials exceeds the applicable *de minimis* allowance), the value of all non-originating materials must be taken into account in calculating the regional value content.

There is however, a rather long list of excluded products and certain categories of products such as textiles and garments are subject to specific de minimis provisions. The Article 405 *de minimis* rule does not apply to the following materials:

- certain dairy products and preparations that are used in the production of goods provided for in Chapter 4 of the HTS;
- goods provided for in Chapter 4 of the HTS and some dairy preparations that are used in the production of certain goods containing milk, milk solids, or butterfat;
- some fruits and juices used in the production of certain juices and juice concentrates;
- coffee beans used in the production of unflavored instant coffee (note: the Annex 401 origin criterion for unflavored instant coffee allows up to 60 percent non-originating coffee, so substantial allowance is already made for non-originating inputs);
- fats, lards, oils, and related products provided for in Chapter 15 of the HTS that are used in the production of Chapter 15 goods (except olive, palm, and coconut oils, where the *de minimis* rule does apply);
- Cane and beet sugar used in the production of sugars, syrups and other products provided for in HTS headings 1701–1703;
- Sugar, molasses, sugar confectionery and other goods provided for in Chapter 17 of the HTS and cocoa powder provided for in HTS 18.05 that are used in the production of chocolate and other food preparations containing cocoa;
- beer wine and other fermented beverages provided for in HTS headings 22.03–22.08 used in the production of alcoholic beverages and related products provided for in HTS headings 22.07 and 22.08; any non-originating material used in the production of many major appliances such as refrigerators, freezers, air conditioners, stoves, ranges, trash compactors, clothes-dryers and washing machines;
- printed circuit assemblies used in the production of a good if the change in tariff classification prescribed by Annex 401 for that good places restrictions on their use.

There also special *de minimis* rules for textiles and agricultural products.

2.3.2. Regional value content in NAFTA and percentage requirements in the US and in the EU

In cases where it was felt that the change of tariff classification was not adequate, NAFTA requires a specified amount of "regional value content"[33] in order for a good to obtain NAFTA tariff preference. These regional value-added content calculations are still applicable in spite of the suspicion and dislike for such rules demonstrated by U.S. negotiators during the negotiations on non preferential rules of origin.

The usual rule specifies that at least 50 percent of the value of a product must be North American in order to qualify for NAFTA treatment. Regional value content rules are used extensively for automotive goods and chemicals, but are quite limited in other product areas[34].

[33] See Rules of Origin, Regional Value Content, NAFTA Facts Document 5011.

[34] It is important to note that the regional value content test is not a generally available option for exporters, but may be used when specified in annex 401 rules.

According to NAFTA, regional value content may be calculated using two methods: transaction value or net cost; both formulas are shown in the following section. Their difference lies in the cost basis used to make the calculation:

- Transaction value generally means the price actually paid or payable for a good;
- The net cost method removes sales promotion, marketing and after-sales service costs, royalties, shipping and packing costs, and some interest costs from the equation.

Because the transaction value is a broader basis for calculating content, the regional value content required is higher than for net cost. In most cases, the required level of regional value content is 60 percent for transaction value and 50 percent for net cost.

Generally, exporters and producers may choose which valuation methodology they prefer, but there are exceptions. For automotive goods, footwear and word processing machines, only the net cost method may be used. This is also true of goods for that there is no acceptable transaction value. Goods designated as "intermediate materials" and goods for which "accumulation" of regional value content is used, must also use the net cost method.

The transaction value method is generally simpler to use but a producer may choose whichever method is most advantageous.

The **transaction value method** calculates the value of the non-originating materials as a percentage of the WTO Customs Valuation transaction value of the good, which is the total price paid for the good, with certain adjustments for packing and other items, and is based on principles of the WTO Customs Valuation Agreement. The essence of this method is that the value of non-originating materials can be calculated as a percentage of the invoice price which is usually the price actually paid for them. Because the transaction value method permits the producer to count all of its costs and profit as territorial, the required percentage of regional value content under this method is higher than under the net cost method. This method is somewhat similar to the Pan-European method of calculating percentages since it is based on a subtraction methodology rather than as under the net cost method a value-added addition.

These different methodologies may have determinants implications on the administration of rules of origin that are further illustrated in chapter 4.

Under NAFTA there are a number of situations where the transaction value method cannot be used and the net cost method is the only alternative. The net cost method must be used when there is no transaction value, in some related party transactions, for certain motor vehicles and parts, when a producer is accumulating regional value content, as well as to determine the regional value content for designated intermediate materials. The producer may also revert to the net cost method if the result using the transaction value method is unfavorable.

The formula for calculating the regional value content using the transaction value method is:

$$RVC = \frac{TV - VNM}{TV} \times 100$$

where RVC is the regional value content, expressed as a percentage; TV is the transaction value of the good adjusted to an F.O.B. basis; and VNM is the value of non-originating materials used by the producer in the production of the good.

The **net cost method** calculates the regional value content as a percentage of the net cost to produce the good. Net cost represents all of the costs incurred by the producer minus expenses for sales promotion (including marketing and after-sales service), royalties, shipping and packing costs and non-allowable interest costs. The percentage content required for the net cost method is lower that the percentage content required under the transaction value method because of the exclusion of certain costs from the net cost calculation.

The formula for calculating the regional value content using the net cost method is:

$$RVC = \frac{NC - VNM}{NC} \times 100$$

where RVC is the regional value content, expressed as a percentage; NC is the net cost of the good; and VNM is the value of non-originating materials used by the producer in the production of the good.

An electric hair curling iron (HTS 8516.32) is made in Mexico from Japanese hair curler parts (HTS 8516.90). Each hair curling iron is sold for $4.00; the value of the non-originating hair curler parts is $1.80. The annex 401 rule of origin for HTS 8516.32 states:

- *A change to subheading 8516.32 from subheading 8516.80 or any other heading; or*
- *A change to subheading 8516.32 from subheading 8516.90, whether or not there is also a change from subheading 8516.80 or any other heading, provided there is a regional value content of not less than:*
    - *60 percent, where the transaction value method is used; or*
    - *50 percent, where the net cost method is used.*

The first of these two rules is not met, since there is no heading change. Therefore, the producer must verify whether the curling irons can qualify under the second rule. In the second rule, since the required subheading change is met (from 8516.90 to 8516.32), one proceeds to calculate the regional value content. The regional value content under the transaction value method is:

$$\frac{(4.00 - 1.80)}{4.00} \times 100 = 55\%$$

The hair curler is not considered an originating good under this method, since the required regional value content is 60 percent when the transaction value is used. Instead, the producer uses the net cost method. The total cost of the hair curler is $3.90, which includes $0.25 for shipping and packing costs. There are no costs for royalties, sales promotion, or non-allowable interest. The net cost is therefore $3.65. The regional value content under the net cost method is:

$$\frac{(3.65 - 1.80)}{3.65} \times 100 = 50.1\%$$

The hair curler would be considered originating, since the required regional value content is 50 percent when the net cost method is used.

As discussed further below in section 2.3.5, the US has progressively reduced the scope for application of the net cost method in subsequent FTA agreements negotiated after NAFTA. The US, as explained in section 3.1.5, have introduced in subsequent FTAs other methods to define the percentage based on a value of material calculation that is conceptually similar to the EU way of calculating the percentage criterion. These concepts and different ways of calculating the percentage criterion are discussed in depth in section 2.3.5 and compared with EU practice in section 3.1.5.

2.3.3. Self-produced Materials and intermediate materials (US) and absorption principle (EU)

The *absorption* principle is a trade liberalizing mechanisms that the EU has so far applied quite generously in its FTAs. The concept of *"absorption"* is normally contained in the latest generation of the EU FTAs under paragraph 2 of article 5 [As in the case of the EU-Singapore FTA] dealing with sufficient and processing operation as follows:

The conditions referred to above indicate, for all products covered by this Agreement, the working or processing which must be carried out on non-originating materials used in manufacturing and apply only in relation to such materials. It follows that if a product which has acquired originating status by fulfilling the conditions set out in the list in Annex B or B(a) to this Protocol is used in the manufacture of another product, the conditions applicable to the product in which it is incorporated do not apply to it, and no account shall be taken of the non-originating materials which may have been used in its manufacture.

The previous FTA protocol like the EU-Switzerland FTA contained a telling example on how the absorption principle works in practice:

3.1. The provisions of Article 6 of the Protocol, concerning products having acquired originating status which are used in the manufacture of other products, shall apply, regardless of whether this status has been acquired inside the factory where these products are used or in another factory in a contracting party.

<u>Example:</u>
An engine of heading 8407, for which the rule states that the value of the non-originating materials which may be incorporated may not exceed 40 % of the ex-works price, is made from "other alloy steel roughly shaped by forging" of heading ex 7224.If this forging has been forged in the Community from a non-originating ingot, it has already acquired originating status by virtue of the rule for heading ex 7224 in the list. The forging can then count as originating in the value calculation for the engine, regardless of whether it was produced in the same factory or in another factory in the Community. The value of the non-originating ingot is thus not taken into account when adding up the value of the non-originating materials used.
NAFTA uses the concept of intermediate materials that is rather similar to the absorption principle discussed above. While the concept is similar, the modus operandi and the administration of this rule under the NAFTA rules are starkly different. The amount of details and conditions attached to the NAFTA rules on intermediate material found no comparison with those under the Pan-European rules of origin.

According to the NAFTA rules for intermediate materials a producer may designate as an intermediate material any self-produced, originating material used in the production of the final goods. As long as the intermediate material qualifies as an originating material, its entire value may be treated as originating in determining the regional value content of the finished goods.

This provision covers all goods and materials except:

- automotive goods defined in Article 403(1) and described in Annex 403.1 and;
- components described in Annex 403.2, specifically engines and gearboxes.

An intermediate material may be composed of originating and non-originating sub-materials. After determining that an intermediate material satisfies the applicable rule of origin under Article 401, the total cost to produce that intermediate material is treated as an originating cost. In other words, the producer would not include the value of the non-originating materials used to produce the intermediate material as part of the value of non-originating materials when calculating the regional value content of the final goods. The benefit of designating an intermediate material is that the producer may treat self-produced materials similarly to the way in which he would treat an originating material purchased at arm's length for purposes of determining the value of the non-originating materials of the final goods.

There are a series of limitation to the designation of intermediate materials. The first limitation provide that if the intermediate material must satisfy a minimum regional value content to qualify as originating, the net cost method must be used to calculate that regional value content.

A second and more important limitations concern material subject to a regional value-content requirement may be designated as an intermediate material if it contains sub-materials also subject to a regional value-content requirement that were also designated as intermediate materials. In other words this rule is designed to impede the successive designation of intermediate materials as shown in the example in the following section.

Example:[35]

Company Z manufactures forklift trucks in Canada and makes some of the materials used in their production. There are different materials used in the production of the forklift truck.

The outer races, balls, steel, gaskets, impellers, bearings, engine blocks, crank shafts) are materials acquired from sellers in non-NAFTA countries. The rod-end bearings, casings, impeller assemblies, engines) are self-produced materials. They are considered horizontal materials in relation to each other. The impeller assemblies cannot be designated as intermediate materials because they do not meet the Annex 401 rule of origin ("a change to subheading 8413.91 from any other heading"). However, the rod-end bearings, casings, and engines could all be designated intermediate materials, as long as they satisfy the applicable NAFTA product-specific rules of origin. (The casings undoubtedly meet the rule of origin, which provides for "a change to subheading 8412.90 from any other heading." The engines and rod-end bearings meet the required tariff change prescribed in the Annex 401 rules of origin, but

[35] This example and the graphics have been excerpted from the Trilateral Customs guide to NAFTA available at : http://www.cra-arc.gc.ca/tax/business/smallbusiness/c124-e.html#Intermediate_materials

would also have to meet a regional value content requirement to qualify as originating). We assume that the regional value content is met throughout this example.

The rod-end bearings and casings are used in the production of the cylinders. Likewise, the impeller assemblies and engines are used in the production of the pumps that drive the hydraulic mechanisms of the forklifts. The cylinders and pumps (represented by triangles) are intermediate materials that are horizontal in relation to each other, and vertical in relation to the materials from which they were made. As long as there is no regional value content requirement for more than one intermediate material in the vertical stream, each new material can be designated as an intermediate material. The cylinder qualifies as originating under article 401(c) because it is made in Canada exclusively from originating materials. Here, however, both the engine and the pump are subject to regional value content requirements.

Thus, Company Z can choose to designate the engine or the pump as an intermediate material, ***but not both****. Therefore, Company Z must choose which is most advantageous: to designate the engines as an intermediate material, or to designate the pump. The forklift truck will then qualify as an originating good.*

Where a single producer designates intermediate materials that qualify as originating solely based on a tariff change, that is, without having to satisfy a regional value-content requirement, subsequent designations can be made with previously designated intermediate materials. Thus, in the example above, if the engine were not subject to a regional value-content requirement, both it and the pump could be designated as intermediate materials.

The following example further aims at clarifying the differences of when a successive designation of intermediate material is allowed or not depending whether the regional value content rules was previously applied.

Example on Single Producer and Successive Designations of Materials Subject to a Regional Value-Content Requirement as Intermediate Materials

Producer A, located in NAFTA country, produces Material X and uses Material X in the production of Good B. Material X qualifies as an originating material because it satisfies the applicable regional value-content requirement. Producer A designates Material A as an intermediate material.

Producer A uses Material X in the production of Material Y, which is also used in the production of Good B. Material Y is also subject to a regional value-content requirement. Under the proviso set out above, Producer A cannot designate Material Y as an intermediate material, even if Material Y satisfies the applicable regional value-content requirement, because Material X was already designated by Producer A as an intermediate material.

Example on Single Producer and Multiple Designations of Materials as Intermediate Materials

Producer X, who is located in NAFTA country X, uses non originating materials in the production of self-produced materials A, B, and C. None of the self-produced materials are used in the production of any of the other self-produced materials. Producer X uses the self-produced materials in the production of Good O, which is exported to NAFTA country Y. Materials A, B and C qualify as originating materials because they satisfy the applicable regional value-content requirements. Because none of the self-produced materials are used in the produc-

tion of any of the other self-produced materials, then even though each self-produced material is subject to a regional value-content requirement, Producer X may, under section 7(4), designate all of the self-produced materials as intermediate materials. The proviso set out in section 7(4) only applies where self-produced materials are used in the production of other self-produced materials and both are subject to a regional value-content requirement.

The second set of detailed rules concerns the method for determining the value of the intermediate material. Basically there are two methods for determining the value of an intermediate material:

- the total cost incurred with respect to all goods produced that can be reasonably allocated to that intermediate material; or
- the aggregate of each cost that forms part of the total cost incurred with respect to that intermediate material that can be reasonably allocated to that intermediate material.

The two methods allow producers to select the one that best fits their production and accounting practices. The value of the intermediate material should be approximately the same using either method. However, the net cost method must be used for intermediate materials subject to a regional value-content requirement. Article 402(8) of the Agreement lists those costs which may not be included when calculating the regional value content of the intermediate material using the net cost method:

- sales promotion, including marketing and after-sales service costs;
- royalties;
- shipping and packing costs;
- now-allowable interest costs.

Although these costs are excluded in the net cost calculation, they do form part of the total cost of the material. Accordingly, costs such as royalties are excluded when calculating the net cost for purposes of determining whether the material satisfies a regional value-content requirement (and thus originates and can be designated an intermediate material), but are included in the total value of the material once its origin has been determined. As noted above, the total value of an intermediate material may be counted as an originating cost.

A producer located in a NAFTA country produces Good B, which is subject to a regional value-content requirement under section 4(2)(b). The producer also produces Material A, which is used in the production of Good B. Both originating materials and non-originating materials are used in the production of Material A. Material A is subject to a change in tariff classification requirement under section 4(2)(a). The costs to produce Material A are the following:

Product Costs:	
Value of originating materials	*$1.00*
Value of non-originating materials	*$7.50*
Other product costs	*$1.50*
Period costs: (including $0.30 in royalties)	*$0.50*
Other costs	*$0.10*
Total cost of Material A:	*$10.60*

The producer designates Material A as an intermediate material and determines that, because all of the non-0riginating materials that are used in the production of Material A undergo an applicable change in tariff classification set out in Schedule I, Material A would, under paragraph 4(2)(a) qualify as an originating material. The cost of the non-originating materials used in the production of Material A is therefore not included in the value of non-originating materials that are used in the production of Good B for the purpose of determining the regional value content of Good B. Because Material A has been designated as an intermediate material, the total cost of Material A, which is $10.60, is treated as the cost of originating materials for the purpose of calculating the regional value content of Good B. The total cost of Good B is determined in accordance with the following figures:

Product Costs:	
Value of originating materials	
–intermediate materials	*$10.00*
–other materials	*$3.00*
Value of non-originating materials	*$5.50*
Other product costs	*$6.50*
Period costs	*$2.50*
Other costs	*$0.10*
Total cost of Good B	*$28.20*

Example: Originating Materials Acquired from a Producer Who Produced Them Using Intermediate Materials

Producer A, located in NAFTA country A, produces switches. In order for the switches to qualify as originating goods, Producer A designates subassemblies of the switches as intermediate materials. The subassemblies are subject to a regional value-content requirement. They satisfy that requirement, and qualify as originating materials. The switches are also subject to a regional value-content requirement, and, with the subassemblies designated as intermediate materials, are determined to have a regional value content of 65 percent.

Producer A sells the switches to Producer B, located in NAFTA country B, who uses them to produce switch assemblies that are used in the production of Good B. The switch assemblies are subject to a regional value-content requirement. Producers A and B are not accumulating their production within the meaning of section 14.

Producer B is therefore able, under section 7(4), to designate the switch assemblies as intermediate materials.

If Producers A and B were accumulating their production within the meaning of section 14, Producer B would be unable to designate the switch assemblies as intermediate materials, because the production of both producers would be considered to be the production of one producer.

2.3.4. Automotive products in NAFTA and in EU FTAs

NAFTA rules of origin on automotive products are likely the most regulated and detailed rules of origin existing in this sector. In this section certain aspects of the rules are discussed as they may be used further as example in other chapters.

NAFTA rules on automotive introduced the concept of tracing. In a word tracing is exactly the opposite of the rule on intermediate materials. Tracing allows counting value content by tracking the value of major automotive components and subassemblies imported into the NAFTA region. The non-originating value of these components and subassemblies is then reflected in the regional value-content calculation of the motor vehicle or in auto parts destined for original equipment use. For those components subject to tracing, any non-originating (non-NAFTA) value will remain non-originating through all stages of assembly to the time of calculation of the regional value content of the motor vehicle (or auto part destined for original equipment use). The value of traceable automotive components is determined at the time the non-originating components are received by the first person in Canada, Mexico, or the United States who takes title to them, after importation from outside the NAFTA region. The value of the components will be determined in accordance with standard valuation norms and will generally be the transaction value. Certain costs must be added to the transaction value if not included in it (e.g., packing, selling commissions).

One can only imagine the complexities of the calculation of the net cost for car manufactures in North America that are producing millions of cars, models using thousands of parts. Another important concept that NAFTA rules have elaborated are the sophisticated rules on averaging methodologies.

Producers of automotive goods may elect to average their costs when calculating the regional value content. A motor vehicle producer may average the calculation over its fiscal year either by all motor vehicles or only those motor vehicles in a category that are exported to another NAFTA party. The four categories are:

- the same model line of motor vehicles in the same class of vehicles produced in the same plant;
- the same class of motor vehicles produced in the same plant;
- the same model line of motor vehicles produced;
- special averaging rules for CAMI Automotive, Inc.

Producers of components that must be traced may also average their costs. A producer may average its calculation:

- over the fiscal year of the motor vehicle producer to whom the good is sold;
- over any quarter or month, or
- over its fiscal year, if the good is sold as an aftermarket part.

Producers may elect to calculate the average separately for any or all goods sold to one or more motor vehicle producers or calculate separately those goods that are exported to Canada, Mexico, and/or the United States.

Other Provisions. The provisions on accumulation, fungible goods, and intermediate materials may be used to integrate and rationalize production processes throughout Canada, Mexico, and the United States. Components that are subject to tracing for autos and light vehicles may be designated as intermediate materials. Producers may not, however, designate as an intermediate material any traceable component for motor vehicles other than autos and light vehicles.

The example in the following section refers to a situation where tracing is applied.

Example:

An electric motor provided for in subheading 8501.10 is imported from outside the territories of the NAFTA countries and is used in the territory of a NAFTA country in the production of a seat frame provided for in subheading 9401.90. The seat frame, with the electric motor attached, is sold to a producer of seats provided for in subheading 9401.20. The seat producer sells the seat to a producer of light-duty vehicles. The seat is to be used as original equipment in the production of that light-duty vehicle. The electric motor is a traced material; the seat is not a traced material because it was not imported from outside the territories of the NAFTA countries. For purposes of calculating the regional value content of the seat, the value of traced materials incorporated into it is included in the value of non-originating materials used in the production of the seat. The value of the electric motor is included in that value (However, the value of the motor would not be included separately in the net cost of the seat because the value of the motor is included as part of the cost of the seat frame). For purposes of calculating, under), the regional value content of the light-duty vehicle, the value of the electric motor is included in the value of non-originating materials used in the production of the light-duty vehicle, even if the seat is an originating material.

The following examples may be contrasted with the example made under the absorption rules described under the Pan-European rules of origin for the manufacturing of an engine. There is stark difference in terms of restrictiveness of the rules because the Pan-European rules of origin are much more liberal and simpler that the NAFTA rules on the automotive sector.

For instance under the Pan-European rules of origin the whole value of the engine in the example 1 in the following section would be calculated as originating under the absorption rules without deducting the value of the cast block, cast heads and connecting rod assemblies. The same hold true for the example under two where the pistons would not have been calculated as non originating material.

Example 1:

Cast blocks, cast heads and connecting rod assemblies provided for in heading 8409 are imported from outside the territories of the NAFTA countries by an engine producer, who has title to them at the time of importation, and are used by the producer in the territory of NAFTA country A in the production of an engine provided for in heading 8407. After the regional value content of the engine is calculated, the engine is an originating good. It is not a traced material because it was not imported from outside the territories of the NAFTA countries. The engine is exported to NAFTA country B, to be used as original equipment by a producer of light-duty vehicles.

For purposes of calculating, the regional value content of the light-duty vehicle that incorporates the engine, because heading 8409 is listed in Schedule IV and because the cast blocks, cast heads and connecting rod assemblies were imported into the territory of a NAFTA country and are incorporated into the light-duty vehicle, the value of those materials, which are traced materials, is included in the value of non-originating materials used in the production of the light-duty vehicle, even though the engine is an originating material. The producer of the light-duty vehicle did not import the traced materials. However, because that producer has a statement stating the value of non-originating materials of the traced materials, the producer of the light-duty vehicle may, in accordance with section 9(8), use that value as the value of non-originating materials of the light-duty vehicle with respect to that engine.

Example 2:

Aluminum ingots provided for in subheading 7601.10 and piston assemblies provided for in heading 8409 are imported from outside the territories of the NAFTA countries by an engine producer and are used by that producer in the territory of NAFTA country A in the production of an engine provided for in heading 8407. The aluminum ingots are used by the producer to produce an engine block; the piston assembly is then incorporated into the engine block and the producer designates, a short block provided for in heading 8409 as an intermediate material. The intermediate material qualifies as an originating material. The engine that incorporates the short block is exported to NAFTA country B and used as original equipment in the production of a light-duty vehicle. The piston assemblies provided for in heading 8409 are traced materials; neither the engine nor the short block are traced materials because they were not imported from outside the territories of the NAFTA countries. For purposes of calculating, the regional value content of the engine, the value of the piston assemblies is included in the value of non-originating materials, even if the intermediate material is an originating material. However, the value of the aluminum ingots is not included in the value of non- originating materials because subheading 7601.10 is not listed in Schedule IV. The value of the aluminum ingots does not need to be included separately in the net cost of the engine because that value is included in the value of the intermediate material, and the total cost of the intermediate material is included in the net cost of the engine. For purposes of calculating the regional value content of the light-duty vehicle that incorporates the engine (and the piston assemblies), the value of the piston assemblies incorporated into that light-duty vehicle is included in the value of non-originating materials of the light-duty vehicle.

2.3.5. The evolution of the NAFTA model of rules of origin: From NAFTA to CAFTA trough U.S.-Chile and U.S.-Singapore and other FTA agreements

NAFTA certainly meant a watershed in the U.S. rules of origin and the NAFTA model has often been branded as one of the most complicated and stringent set of rules of origin. However, this has not meant that there has not been an evolution in NAFTA model. The NAFTA rules of origin themselves have undergone extensive revisiting at the initiative of the contracting parties. In subsequent RTAs, that the US has entered with other partners like Australia, Singapore, Chile, and most recently, CAFTA there is marked evolution in some of the rules of origin elements. As shown in the table in the following section because NAFTA there has been a strong tendency to move away from using percentage criteria and especially the net cost method in calculating the regional value content. In NAFTA there were 2,601 rules containing a percentage criteria calculation. In the subsequent agreements the percentage criteria based on the transaction and net cost calculation were around 600 marking a significant reduction (See Table 1).

Table 1: showing the evolution of the NAFTA based rules of origin[36]

Regional value content	NAFTA	USAAUS	CHLUSA	CAFTA	USASIN	MEXTN	MEX-NIC	MEX-CRI	MEX-BOL	CANCHL	CAN-CRI
Trans-action	1,266	581	556	549	331	1,311	1,254	1,243	1,205	1,117	873
Net cost	1,335	54	0	54	0	0	1,283	1,271	1,234	1,207	49
Materi-als	0	517	524	519	363	0	0	0	0	0	8

The use of the net cost method has been significantly reduced from 1,335 in NAFTA to 54 in the U.S.-Australia FTA and the CAFTA and it has been eliminated in the U.S.-Chile and U.S.-Singapore agreement. In contrast to the evolution of the U.S. in relation to the NAFTA rules are the rules of origin contained in free trade agreements signed by Mexico with neighboring countries. As Table 1 shows, it appears there have not been notable changes. In comparison, the agreements signed by Canada show a significant movement.

In particular the rules of origin contained in the Agreements after NAFTA made good use of the lessons learned of the difficulties of calculation of the net cost. In all other agreements following NAFTA the build down and build up method as described in the following section have virtually replaced the old calculation methodology. The build-up and build down calculation methodology uses the value of materials in both calculations. Using such numerator based uniquely on costs of materials limits considerably the inherent difficulties of making the allocation of costs to the single unit of production and the complex averaging calculations that have been shown in the examples above. In the following section an excerpt of the U.S.-Chile FTAs is shown as an example of the new formulation of the regional value content:

[36] This table is excerpted from a presentation made by Rafael Cornejo, Inter-American Development Bank at the regional workshop on negotiations and implementation of new origin regimes, 25–27 April 2006.

(i) Where a rule set forth in subdivision (n) of this note specifies a regional value content for a good, the regional value content of such good shall be calculated, at the choice of the person claiming the tariff treatment authorized by this note for such good, on the basis of the build-down method or the build-up method[37] described in the following section, unless otherwise specified in this note:

(A) For the build-down method, the regional value content may be calculated on the basis of the formula RVC = ((AV – VNM)/AV) x 100, where RVC is the regional value content, expressed as a percentage; AV is the adjusted value; and VNM is the value of non-originating materials used by the producer in the production of the good; or

(B) For the build-up method, the regional value content may be calculated on the basis of the formula RVC = (VOM /AV) x 100, where RVC is the regional value content, expressed as a percentage; AV is the adjusted value; and VOM is the value of originating materials used by the producer in the production of the good.

Another excerpt shows what is intended as "adjusted value":

The term "adjusted value" means the value determined under articles 1 through 8, article 15 and the corresponding interpretive notes of the Agreement on Implementation of Article VII of the General Agreement on Tariffs and Trade (the Customs Valuation Agreement), except that such value may be adjusted to exclude any costs, charges or expenses incurred for transportation, insurance and related services incident to the international shipment of the merchandise from the country of exportation to the place of importation

It is clear that the reliance on a multilateral instrument such as the Agreement on customs valuation adds predictability in the application and administration of the methodology of calculating regional value contents.

This way of calculating regional value content is used to define many specific rules of in the DR-CAFTA rather than the complex net cost method so often used in NAFTA, that is now only used for automotive industry products, on an optional basis. For instance under CAFTA for most goods, the Agreement provides for two methods for calculating RVC: (1) the build-up method, based on the value of originating materials; and (2) the build-down method, based on the value of non-originating materials. However, the RVC for certain automotive goods may be calculated using the net cost method. This is limited to the following automotive goods:

HTS	General Description
8407.31 through 8407.34	Engines
8408.20	Diesel Engines for Vehicles
8409	Parts of Engines

[37] The build-up method is calculation method where you « *build-up » the RCV by adding the value of originating materials*. In the *« build down* » calculation method, the RVC is calculated by subtracting the value of non originating materials to the adjusted value .

Other additional feature has been brought in the recent FTAs entered by the US is the issue of remanufactured products For instance under DR-CAFTA, remanufactured products are accorded the same tariff treatment as new products, but have some exclusive flexibility in terms of origin.

It has been found that the universe of products that can be remanufactured is considerably larger than that agreed upon by the United States in its previous negotiations with Chile and Singapore. For the Central American countries,[38] accepting this larger universe (870 subheadings, 2,000 percent more than in the agreements with Chile and Singapore) did not pose a difficulty for two fundamental reasons. First, remanufactured goods in Central America are largely subject to zero tariffs due to the absence of regional production. Second, Central American regulations allow used goods to be imported.

Some other innovations contained in the most recent agreement concerns the textiles and apparel products.

Under the U.S.-Chile agreement these changes were limited because the basic elements were similar to NAFTA processes

a) Yarn – generally, fiber must originate in Chile or U.S. in order to qualify for preferential tariff treatment.
b) Fabric – generally, yarn must originate in Chile or U.S. to qualify for preferential tariff treatment. Cotton and man-made knit fabric are under fiber forward rules.
c) Apparel – generally, yarn must originate in Chile or U.S. in order to qualify for preferential tariff treatment.

The CAFTA-DR employs the value of material methodology to determine whether a good qualifies for preferential tariff treatment that is found in previous agreements such as the U.S.-Chile and Australia Free Trade Agreements. Another notable similarity is that the responsibility for providing information to substantiate the claim is on the importer.

Generally, under the CAFTA-DR, a non-textile good is originating where:

a) The good is wholly obtained or produced entirely in the territory of one or more of the Parties (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Dominican Republic, or the U.S.);
b) The good is produced entirely in the territory of one or more of the Parties and
c) Each of the non-originating materials used in the production of the good undergoes an applicable change in tariff classification as specified in the product specific list; or

The good otherwise satisfies any applicable regional value content (RVC) specified in GN29(n); and the good satisfies all other applicable requirements; or

The good is produced entirely in the territory of one or more of the Parties exclusively from originating materials.

As in other FTAs, the CAFTA-DR contains a de minimis provision of 10 percent that applies to most goods, except some products. This provision also is inapplicable to textile articles,

[38] See J. Granados and R Corneyo "Convergence in the Americas: some lessons from the DR-Cafta process," World Economy, 2006

which have their own de minimis rule based on a weight percentage). Under the de minimis rule, a good that contains materials that do not undergo a required change in tariff classification (tariff shift) as specified in GN29(n), may still qualify as originating if the value of all non-originating materials, used in the production of the good, that do not undergo the required change in classification does not exceed 10 percent of the adjusted value of the good. The de minimis provision applies provided that the value of such non-originating materials will be included in the total value of non-originating materials for any applicable RVC requirement.

A textile or wearing apparel good that is not an originating good because certain fibers or yarns used in the production of the component of the good that determines the tariff classification of the good do not undergo an applicable change in tariff classification, shall nonetheless be considered to be an originating good if the total weight of all such fibres or yarns in that component is not more than 10 percent of the total weight of that component.

The summary of the type of processes required for some of the more basic textile and apparel products in order for them to be considered eligible for CAFTA-DR contains some innovations.

a) Yarn – generally, fiber must originate in a CAFTA-DR beneficiary country or the U.S. to qualify for preferential tariff treatment.
b) Fabric – generally, yarn must originate in a CAFTA-DR beneficiary country or the U.S. to qualify for preferential tariff treatment. Cotton and man-made knit fabric are under fiber forward rules, meaning the fiber must originate in a CAFTA-DR beneficiary country or the U.S. to qualify for preferential treatment.
c) Apparel – generally, yarn must originate in a CAFTA-DR beneficiary country or the U.S. to qualify for preferential tariff treatment.

In addition to this summary, a number of single transformation rules for luggage, cotton and manmade fiber woven dresses other than corduroy, boxer shorts, brassieres, and boys and girls woven pyjamas and nightwear have been added.

Another important flexibility introduced in recent FTAs is the possibility to expand upon request the list of textile and garments in short supply. Inclusion on this list allows the use of these imported materials.

2.4. A comparison between the NAFTA-Model and the Pan-European Rules of Origin approaches[39]: Techniques and substantive requirements

It is undeniable that the NAFTA and the EU approaches in dealing with preferential rules of origin are largely dominating and influencing the scene when preferential rules of origin are drafted in the context of any FTA. Thus it is opportune to draw some comparisons of technical and substantive nature to illustrate the main differences between the two approach-

[39] In this study the terminology Pan-European rules of origin is used for ease of reference. In reality there are "Pan-European" rules of origin that are used among EU, EEA, Turkey; and the system of Pan-Euro-Med rules of origin operating between the EU and the States of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) and Turkey and the countries which signed the Barcelona Declaration, namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Authority of the West Bank and Gaza Strip, Faroe Islands.

es[40]. There are a series of differences from the EU practice in setting the product-specific rules. In the EU, product-specific rules are set at chapter and heading level, sometime referring to specific products classified within the heading by utilizing an "ex" while in the case of the NAFTA product-specific rules are set at heading, subheading, and national tariff line level. The product-specific rules of origin of the Pan-Euro-Med model are at times more restrictive for agricultural goods and in certain cases more detailed at product-specific- level. Conversely, the NAFTA rules of origin are more restrictive on textiles, clothing, and motor vehicles. For the large majority of HS chapters the breakdown at subheading or tariff item level of NAFTA far exceeds those under the Pan-European rules.

Another remarkable difference in drafting product-specific requirements is that the NAFTA rules do not utilize working or processing operations to confer origin except than in very limited cases.

One of the most visible differences in the drafting of the rules is the almost exclusive reliance by NAFTA on the tariff shift approach. For instance for goods of chapter 16 classifying prepared foodstuffs, the NAFTA rules require "a change to heading 16.01 through 16.05 from any other chapter."

In plain words this means that a processing that changes a material into a good of chapter 16 from any other chapters of the harmonized system is origin-conferring. On the other hand, the requirement "from any other chapter" expressly impedes the possibility that a process can change the tariff classification inside the chapter 16 is origin conferring.

Under this NAFTA rule assume frozen pork meat (HS 02.03) is imported into the United States from Hungary, and is combined with spices imported from the Caribbean (HTS 09.07–09.10) and cereals grown and produced in the United States to make fresh pork sausage (HTS 16.01). Since the imported frozen meat is classified in chapter 2 and the spices are classified in chapter 9, these non-originating materials meet the required tariff change. One does not consider whether the cereal meets the applicable tariff change, because it is originating – only non-originating materials have to undergo the tariff change.

Looking at the EU rules in table 2, it is possible to note the most descriptive character of the rules and the concept of wholly obtained products that does not feature in NAFTA or any other NAFTA-model oriented rules of origin. The EU architecture of rules of origin provides for the definition of wholly obtained products[41].According to this concept, wholly obtained products qualify as originating by virtue of the total absence of imported inputs. NAFTA Article 415 (Definitions) defines which products may be considered as wholly obtained. However the NAFTA approach based on the tariff shift does not use the concept of wholly obtained products when drafting product specific rules of origin. For instance even for products of chapter 1 of the Harmonized System, live animals, the NAFTA way of drafting rules of origin is to require a change of chapter even if such a change of chapter is impossible given the structure of the Harmonized system and it is difficult to imagine from what process the live animals may be produced other than the reproductive act.

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[40] For an analysis of EU and NAFTA analysis see also A. Estevadeordal and K. Souminem: Rules of origin in FTAs in Europe and in the Americas: Issues and implication for the EU-Mercosur Interregional Association agreement. INTEL-ITD, working paper 15 January 2004 and for an overall general comparison see WTO" Rules of Origin regimes in Regional Trade Agreements "Committee on Regional Trade Agreements, 5 April 2002.

[41] See the list of wholly obtained products in the Pan European rules of origin

If we compare the substance of the rules, meaning how many processes have to be performed on the imported inputs to obtain origin it can be observed that the EU rules for products of chapter 16 are more stringent. In fact the EU rules are requiring that the materials of chapter 1 and 3 are wholly obtained. This means that it is possible to have prepared fish or meat of chapter 16 originating in a country only if the meat have been obtained from animals born and raised in a that country or fished in that country waters. Hence, it may be observed that NAFTA rules are more liberal, because also products of chapter 2[42] could be processed into products of chapter 16. Therefore, it is sufficient to start a manufacturing process from meat or meat offal that is fresh, chilled, frozen, or salted[43] into a good of chapter 16, instead of starting from the live animal – born or raised – as requested by EU rules (See Table 2).

Table 2 - Comparison of product specific rules for chapter 16 between Pan European and NAFTA

HS Code Number	Description of goods	NAFTA Rules[44]	Pan-European[45]
Chapter 16	Preparations of meat, of fish or of crustaceans, mollusks, or other aquatic invertebrates	A change to heading 16.01 through 16.05 from any other chapter.	Manufacture from animals of chapter 1. All the materials of chapter 3 used must be wholly obtained.

Table 3 provides for a comparison of EU and NAFTA rules of origin of Chapter 61 classifying textile fabrics which are manufactured, by the production of a series of interlinking loops, regardless of which of the textiles is used[46].

The EU rules for knitted cotton fabrics require at least two processing: spinning of fibres into yarn and either knitting or crocheting of the yarn into the fabric.

NAFTA rule requires a change from any other chapter, excluding for instance the chapter 52 that corresponds to cotton. Looking at the list of headings of chapter 52[47], that are singled out as exceptions, it emerges that cotton fabric in NAFTA can be manufactured only from cotton originating in NAFTA countries (See Table 3).

[42] Chapter 2 of the HS classify meat and edible offal.
[43] See General introduction to chapter 2. Customs Co-operation Council, Harmonized Commodity Description and Coding System – Explanatory Notes.
[44] Source: North American Free Trade Agreement between the Government of Canada, the Government of Mexico, and the Government of the United States of America – NAFTA – *annex 401: Specific Rules of Origin.*
[45] Source:
[46] See: Customs Co-operation Council, Harmonized Commodity Description and Coding System – Explanatory Notes.
[47] A change to heading 52.01 through 52.07 from any other chapter, except from heading 54.01 through 54.05 or 55.01 through 55.07. A change to heading 52.08 through 52.12 from any heading outside that group, except from heading 51.06 through 51.10, 52.05 through 52.06, 54.01 through 54.04 or 55.09 through 55.10.

Table 3 - Comparison of product specific rules for chapter 60 between Pan European and NAFTA

Hs Code Number	Description of goods	NAFTA Rules	Pan –European
Chapter 60	Knitted or crocheted fabrics	A change to heading 60.01 through 60.02 from any other chapter, except from heading 51.06 through 51.13,[48] chapter 52,[49] heading 53.07 through 53.08[50] or 53.10 through 53.11[51] or chapter 54[52] through 55.[53]	Manufacture from:[54] - Coir yarn; - Natural fibers; - Man-made staple fibers not carded or combed or otherwise processed for spinning; or - Chemical materials or textile pulp.

Chapter 61 classifies articles of apparel and clothing accessories, knitted or crocheted. EU RoO normally requires manufacturing from yarn. This means a double processing requirement, knitting of fabrics and making up of the finished garments. In the case of NAFTA it is possible to depict a *fibre-forward*[55] *rule.* This is a strict rule of origin requiring that the fibres used in making a garment are originating in Canada, Mexico, and United States. For example, cotton yarn – chapter 52 – and cotton-knitted fabrics – chapter 60 – follow the fibre-forward rule.

As explained by the Customs Guide to NAFTA Implementation[56], less strict rules of origin govern certain knitted underwear, brasseries, and shirts made from fabric not commonly produced in North America. For example, silk[57] and linen[58] apparel articles follow a single-transformation rule. Therefore, silk blouses, heading no. 61.06.90, are considered originating even if they are made from non-originating fabric, as long as the fabric is cut and sewn in one or more NAFTA countries. These exceptions give producers flexibility to import materials not widely produced in North-America. Actually the basic origin rule for textile and apparel articles is *yarn-forward.* This means that yarn used to form the fabric, may later be used to

[48] This means that the manufacture of the following materials into goods of chapter 60 is not origin conferring; the materials are: yarn of wool or fine animal hair, carded or combed wool, not put up for retail sale; yarn of wool or fine animal hair for retail sale; Yarn of coarse animal hair or of horsehair, whether or not put up for retail sale; woven fabric of wool or fine animal hair, carded or combed, or woven fabric of coarse animal hair or of horsehair.
[49] This chapter corresponds to Cotton.
[50] This means that the manufacture of the following materials into goods of chapter 60 is not origin conferring; the materials are: yarn of jute or of other textile based fibers; yarn of other vegetable textile fibers; paper yarn.
[51] This means that the manufacture of the following materials into goods of chapter 60 is not origin conferring; the materials are: woven fabric of jute or of other textile-based fibers; woven fabric of other vegetable textile fibers; woven fabric of paper yarn.
[52] This chapter classifies Manmade Filaments.
[53] This chapter classifies Manmade Staple Fibers.
[54] For special conditions relating to products made of a mixture of textile materials, see Introductory Note 5 of the NAFTA agreement.
[55] See Trilateral Customs Guide to NAFTA. www.ccra-adcr.gc.ca
[56] See www.aaatrading.com/nafta/guide, but also www.customs.gov/nafta/docs/us/guidproc.html.
[57] Silk is classified in chapter 50.
[58] Flax is classified in chapter 53.

produce wearing apparel or other textile articles, and must originate in a NAFTA country. Thus, a wool shirt made in Canada from fabric woven in Canada of wool[59] yarn produced in Argentina is not considered originating, since the yarn does not originate within a NAFTA country. If however, Argentine wool fibre was imported into Canada and spun into wool yarn, and was then used to produce the wool fabric, the shirt is considered originating.

Moreover, certain apparel must satisfy the note 1 to chapter 61. The note provides a tariff shift for visible lining fabric from headings listed in the note itself (See

Table 4).

Table 4 - Comparison of product specific rules for chapter 61 between Pan European and NAFTA

Hs Code Number	Description of goods	NAFTA Rules	Pan –European Rules
Chapter 61	Articles of apparel and clothing accessories, knitted or crocheted	A change at subheading level through all chapter 61 from any other chapter except from heading 51.06 through 51.13, 52.04 through 52.12,[60] 53.07 through 53.08 or 53.10 through 53.11, chapter 54 or heading 55.08 through 55.16[61] or 60.01 through 60.02,[62] provided that: (a) the good is both cut (or knit to shape) and sewn or otherwise assembled in the territory of one or more of the Parties, and (b) the visible lining fabric listed in Note 1 to chapter 61 satisfies the tariff change requirements provided therein.[63],[64],[65]	Manufacture from yarn[66] Manufacture from:[67] - Natural fibers; - Man-made staple fibers not carded or combed or otherwise processed for spinning; or - Chemical materials or textile pulp.

[59] Wool is incorporated in chapter 51.

[60] This means that the manufacture of the following materials into goods of chapter 61 is not origin conferring; the materials are: cotton sewing thread for put up for sale or not; cotton yarn (other than sewing thread) combed or not for retail sale or not containing 85 percent of cotton; woven cotton containing at least 85 percent of cotton whether bleached or not, dyed or printed; woven cotton containing at least 85 percent of cotton, with manmade fiber, whether bleached or not, dyed or printed.

[61] This means that the manufacture of the following materials into goods of chapter 61 is not origin conferring; the materials are: sewing thread of synthetic or artificial staple fibers; yarn (other than sewing thread), 85 percent nylon, other polyamide, polyester, acrylic or modacrylic, other synthetic, or artificial staple fiber (manmade) not for retail sale; yarn of manmade staple fibers mixed with artificial staple fiber, or wool or fine animal hair, or cotton, not put up for sale; yarn of manmade staple fibers, not for retail sale; woven fabric, 85 percent of manmade staple fiber, unbleached or bleached or other than unbleached or bleached; fabric containing less than 85 percent manmade staple fiber, with cotton; woven fabric of manmade staple fiber, with or without viscose rayon staple fiber, manmade filaments, wool or fine animal hair; woven fabric, 85 percent manmade staple fiber, unbleached or bleached, dyed, yarn dyed, printed; woven fabric of artificial staple fiber, unbleached or bleached, dyed, yarn dyed, printed.

The NAFTA provision for chapter 62 – articles of apparel and clothing accessories not knitted or crocheted – is not different from the one for chapter 61. The fibre-forward rule is applied. There is only one change in the rule, in fact there is one more exception: it is not allowed a change from woven pile fabrics and chenille fabrics, and terry toweling and similar woven terry fabrics, tufted textile fabrics, terry toweling and similar woven terry fabrics, of cotton.

The RoO of the EU for chapter 62 provides for different options. The manufacturing from yarn is the chapter rule with a list of complementary rule for certain headings.

For example the rule for heading 62.10 requires the manufacture from uncoated fabric provided the value of the uncoated fabric used does not exceed 40% of the ex-works price of the product. Supposing that the custom value of the uncoated fabric used is €900 and the ex-work price of the finished fire-resistant equipment is €2,300.

The following is the calculation to be carried out:

100: 2300 = X: 900

X= 39%

Since 39% is less than the maximum amount of 40% the product is originating.

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[62] This means that the manufacture of the following materials into goods of chapter 61 is not origin conferring; the materials are: long pile knitted or crocheted textile fabric; looped pile knitted or crocheted fabric, of cotton, manmade fibers or other textile materials; pile knitted or crocheted fabric, of cotton, manmade fiber or other textile materials; warp knitted fabric, of wool or fine animal hair, cotton, man-made fibers or other materials; knitted or crocheted fabric, of wool or of fine animal hair, cotton, manmade fibers or other materials.

[63] See also *annex* 300-B (Textile and Apparel Goods), Appendix 6(A) of NAFTA.

[64] See NAFTA Rule 1 to chapter 61. A change to any of the following headings or subheadings for visible lining fabrics: 51.11 through 51.12, 5208.31 through 5208.59, 5209.31 through 5209.59, 5210.31 through 5210.59, 5211.31 through 5211.59, 5212.13 through 5212.15, 5212.23 through 5212.25, 5407.42 through 5407.44, 5407.52 through 5407.54, 5407.61, 5407.72 through 5407.74, 5407.82 through 5407.84, 5407.92 through 5407.94, 5408.22 through 5408.24 (excluding tariff item 5408.22.aa, 5408.23.aa or 5408.24.aa), 5408.32 through 5408.34, 5512.19, 5512.29, 5512.99, 5513.21 through 5513.49, 5514.21 through 5515.99, 5516.12 through 5516.14, 5516.22 through 5516.24, 5516.32 through 5516.34, 5516.42 through 5516.44, 5516.92 through 5516.94, 6001.10, 6001.92, 6002.43 or 6002.91 through 6002.93, from any heading outside that group.

[65] See NAFTA Rule 2 to chapter 61. For purposes of determining the origin of a good of this chapter, the rule applicable to that good shall only apply to the component that determines the tariff classification of the good and such component must satisfy the tariff change requirements set out in the rule for that good. If the rule requires that the good must also satisfy the tariff change requirements for visible lining fabrics listed in Note 1 to this chapter, such requirement shall only apply to the visible lining fabric in the main body of the garment, excluding sleeves, which covers the largest surface area, and shall not apply to removable linings.

[66] Obtained by sewing together or otherwise assembling, two or more piece of knitted or crocheted fabrics which have been either cut to form or obtained directly to form.

[67] See note 53.

Table 5 - Comparison of product specific rules for chapter 62 between Pan -European and NAFTA

HS Code Number	Description of goods	NAFTA Rules	Pan- European rules
(EU description) Ex[68] Chapter 62	Articles of apparel and clothing accessories, not knitted or crocheted except for:	A change to subheading 6201.19 from any other chapter, except from heading 51.06 through 41.13, 52.04 through 52.12, 53.07 through 53.08 or 53.10 through 53.11, Chapter 54, or heading 55.08 through 55.16, 58.01 through 58.02 or 60.01 through 60.02, provided that the good is both cut and sewn or otherwise assembled in the territory of one or more of the Parties.	Manufacture from yarn[69]
Ex 62.02	Women's, girls' and babies' clothing and clothing accessories for babies, embroidered	A change to subheading 6202.91 through 6202.93 from any other chapter, except from heading 51.06 through 51.13, 52.04 through 52.12, 53.07 through 53.08 or 53.10 through 53.11, Chapter 54, or heading 55.08 through 55.16, 58.01 through 58.02 or 60.01 through 60.02, provided that: (a) the good is both cut and sewn or otherwise assembled in the territory of one or more of the Parties, and (b) the visible lining fabric listed in Note 1 to Chapter 62 satisfies the tariff change requirements provided therein.	Manufacture from yarn Or Manufacture from unembroidered fabric provided the value of the unembroidered fabric used does not exceed 40 percent of the ex-works price of the product

[68] See introductory Notes to the list, Note 2:
2.1. The first two columns in the list describe the product obtained. The first column gives the heading number or chapter number used in the Harmonized System and the second column gives the description of goods used in that system for that heading or chapter. For each entry in the first two columns, a rule is specified in columns 3 or 4. Where, in some cases, an "ex" precedes the entry in the first column, this signifies that the rules in columns 3 or 4 apply only to the part of that heading as described in column 2.

[69] For special conditions relating to products made of a mixture of textile materials, see Introductory Note 5 and 6.

Table 6 - Comparison of product specific rules for heading 8407 between Pan Euro-Med and NAFTA

HS Code Number	Description	NAFTA Rule	EU Rules
8407	Spark-ignition reciprocating or rotary internal combustion piston engines	A change to heading *84.07 through 84.08* from any other heading, including another heading within that group, provided there is a regional value content of not less than: (a) 60 percent where the transaction value method is used; Or (b) 50 percent where the net cost method is used.	Manufacture in which: - The value of all the materials used does not exceed 40 percent of the ex-works price of the product.

3. THE METHODOLOGY USED TO IDENTIFY THE POSSIBLE TRADE DIVERSION EFFECTS ON SWISS INPUTS OF THE TTIP RULES OF ORIGIN

As discussed under section 1.1, this study focuses on the possible trade diverting effects that a given RoO in the TTIP may have on Swiss producers and/or exporters of inputs that are incorporated in a finished product in the EU or US for export to the respective partner in the TTIP.

The first substantive challenge is to identify what are those inputs that are incorporated in a final product in the Swiss-EU trade to manufacture a finished product exported to the US or in Swiss-US trade for manufacturing a product exported to the EU. This is an extremely daunting task depending on the kind of products that we are considering and requires an impressive array of technical knowledge. In short, what is needed is an input-output matrix that identifies the inputs and components that may be used for manufacturing a finished product. For certain products like canned meat, to design an input–output table is a relatively easy exercise since the inputs are the de-boned meat, salt, colorants and preservatives, the aluminum can. These inputs are clearly defined and transparent. For other products like a computer or an airplane, that are made of thousands of parts and sub-components, it is rather obvious that the task is much more complex entailing the difficult exercise of detecting and identifying what are these hundreds to thousands of sub-components used in the production process. To depict such input-output table in an accurate manner is nearly impossible.

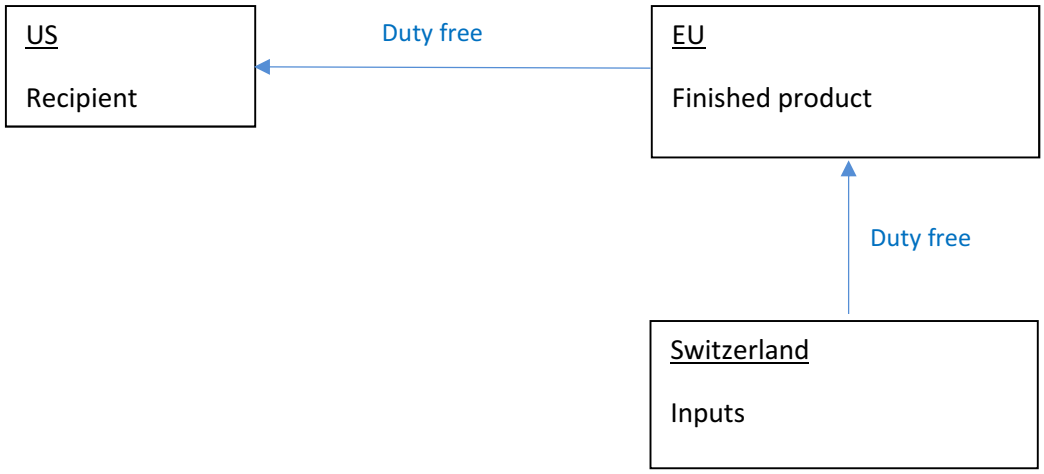
International input-output tables are lately used for the analysis of global supply chains when assessing the import content of exported goods. The OECD and the World Trade Organization, WTO, joined forces to produce new estimates of international trade in value added - i.e. measured in value added instead of gross terms. This OECD-WTO Initiative on Trade in Value Added [TiVA] aims at providing solid evidence to underpin the identification of policy issues and responses in an era of GVCs. However, the level of aggregation of these tables makes them unsuitable for an analysis of the impact of RoO that are set at a much-disaggregated level[70].

[70] The major difficulty in using such input- output for rules of origin purposes is the level of aggregation since even the most sophisticated tool produced by OECD at the moment only covers a limited number of industrial sectors. Moreover the individual input-output matrices are derived from national accounts and are not able to reflect the fundamental question of this study: how the intermediate consumption of an industry in Switzerland is used as an output in the EU for manufacturing finished products. Input-output tables are designed to measure the interrelationships between the producers of goods and services (including imports) within an economy and the users of these same goods and services (including exports). In so doing these input output tables are using goods and services used in manufacturing without necessarily making a distinction if these goods and services are "originating". The OECD has further refined its input output tables using bilateral trade statistics to cover such a gap. However the industry level of detail used covers 37 industries[70] that is not sufficiently disaggregated for the purpose of this study

The second important challenge is to match the inputs-outputs table with the trade flows at a sufficient level of disaggregation. This task requires the analysis of the trade flows in the direction Switzerland to the EU and to the US on one hand, and Swiss to US and to EU on the other hand, to identify the inputs and outputs that are effectively traded in the triangular trade flows depicted in

Figure 3 in the direction Switzerland-to EU and to US.

Figure 3 - Depicting triangular trade direction Swiss –EU-US



The first and the second challenge mentioned above have been addressed by using a methodology first outlined by Inama[71]. Such methodology is based on the combined use of the Harmonized System , HS, the worldwide used Customs Nomenclature and an analysis of the trade flows.

In particular the first challenge -i.e. the composition of a given product- is addressed by constructing:

a] An input –output table based on the HS nomenclature at disaggregated level, often but not always the six digit level of the HS.

The second challenge is addressed by:

b] Matching the input-output table so elaborated with the triangular trade of the Swiss-EU-US direction of trade and Swiss-US-EU direction of trade as depicted in Figure 3 above for the Swiss-EU-US direction of trade.

The process of elaborating an input/output table on the basis of the HS has entailed the following steps:

1. Examination of the HS headings to determine from what other HS headings or HS subheadings a change of tariff classification is possible,

[71] See Inama *Made in China or Made in Tlon*? The quest for a new origin concept measuring international trade and respecting consumers' rights,2013,GTAP

2. Examine the heading text and determine if a change within a heading though not a change of tariff classification may nevertheless reflect an industrial processing. In that case, the assumption is made that the inputs are indeed used to carry out such processing and not for internal consumption. For example, parts exported from Switzerland to the EU of heading of chapter 84 to a finished or unfinished product of the same heading exported from Switzerland to the US would be considered as being object of processing and not being used for internal consumption.

The HS is a multi-purpose tool in international trade as it is used to classify the goods, levy customs duties and to compile trade statistics. In addition, while originally conceived as a customs nomenclature, the HS has been widely used to draft product-specific, highly sophisticated rules of origin starting from the NAFTA experience and it has been used in the EU practice as well. It has also been adopted as the preferred method to draft product specific rules of origin in the context of the *Harmonization Work Program* carried out under the WTO's ARO.

The underlying nature of the HS is based on industrial processes, starting from agricultural products classified in HS Chapters (1-24) to industrial products (25-97) and ranging from the simplest manufacturing to the most sophisticated process.

The following is a rather classical example showing how the HS rationale works:

Example 1 - Cocoa and cocoa preparations

Harmonized System Heading No.	18.01	Cocoa beans
	18.02	Cocoa shells
	18.03	Cocoa paste
	18.04	Cocoa butter
	18.05	Cocoa powder
	18.06	Chocolate, and so on

In this example, the HS reflects the manufacturing chain of a chocolate bar. The HS classifies goods from its raw form to the manufactured form. It starts from cocoa beans classified in 18.01 to the breaking the cocoa beans to obtain the cocoa shells in 18.02 and so on. It may be argued that breaking the beans is a rather simple operation when compared the process of obtaining the butter from the cocoa paste.

The change of tariff classification of one product to another HS chapter , heading of the HS or subheading is caused by an industrial process -.i.e. by moving from Chapter 1 "Live animals" to Chapter 2 "Meat", the process of slaughtering has taken place and from Chapter 2 to Chapter 16 the meat has been processed into canned beef.

The six digits level of detail of the HS subheading permits to focus at on specific products and their components. As a further example is canned tuna of Heading 16.04 can be manufactured from fresh tuna of albacore classified in HS subheading 0302.31 Heading, and from the tin of HS subheading731010 and the olive oil of HS subheading 150910.

However it has to be taken into account that the HS has been conceived as a customs classification nomenclature and not for drafting rules of origin or analytical purposes. Thus in a number of areas the logic of industrial processes is not followed and the structure of the HS

does not reflect coherently such processes. The most important area is machinery and electronics. In a number of cases the assembly of parts of machinery and electronics article into a finished product is reflected in the HS when parts are classified in a different heading or subheading of the finished products. However, at times, parts are classified in the same heading of the finished products. In these cases adjustment have to be made to the HS drawing from the lessons learned in drafting rules of origin in the Harmonization Work of non-preferential rules of origin conducted in WTO.

The methodology used to create an input-output table of triangular trade flows in Swiss-EU-US trade is to decompose the products classified in headings and sub-headings of the HS into different inputs and intermediate products classified in different headings and subheadings of the HS where this is possible.

The input-output table so elaborated provides specific indications at disaggregated level of the triangular trade among Swiss inputs and EU exported product to the US. In so doing the methodology provides clears indication at detailed of the HS headings and subheadings that could be used or could be incorporated in finished EU products exported to the US.

The third challenge is to identify the sourcing policy of a given enterprise based in the EU or in the US that is manufacturing finished products using Swiss inputs. In fact even if the trade flows may indicate that a certain input is exported from Switzerland to the EU and a corresponding output is exported from the EU to the US, there is no assurance that such input is *de facto* used in the manufacturing of that output that is figuring in the EU trade flows towards the US.

As an example steering wheels are exported from Switzerland to the EU and the EU is exporting finished cars to the US. Even if one may suppose that these Swiss-made steering wheels are incorporated in the cars exported to the US, there is no definitive answer other than the sourcing policy of the individual firm to validate such finding. In fact different scenarios may be envisaged from the one mentioned above: a firm may be using EU made steering wheels and the Swiss steering wheels are simply re-exported to the US, the Swiss-made steering wheels are incorporated in the car models sold in the EU internal market or are incorporated in cars that are exported to other markets but not to the US etc. etc. In reality the source policy of firms can only be detected trough questionnaires and analytical review of the results.

To the extent possible, in this study the results of the research have been discussed and contrasted with a number of sample firms representative of the sectors to validate and corroborate the findings of the analysis. These attempts may not be, however, a substitute for an in depth questionnaire based analysis.

Obviously a number of assumptions have been made in analyzing the results of the input-output table and the trade flows. The most important of these assumptions arises from the fact there are no indication of the sourcing policy at firm level. The input-output analysis shows that certain Swiss inputs have been imported into the EU and that some finished products that could incorporate these inputs have been exported to the US. These instances have been clearly observed and pointed in section 3.1 at a very detailed level. In order to ascertain the level or the value of such Swiss trade of intermediates that has been effectively used in EU production for exports to the US there is no other valid instrument than to carry out a qualitative survey at firm level.

It is highly recommended that the Swiss policy makers carry out this exercise that has not been possible under the present study. In fact the consultations with the association of manufacturers[72] that have been conducted in the context of this study while useful in validating the overall methodology of the study could not pre-empt the results of the analysis conducted in this study.

The interviews with representatives of the Industries associations by their very nature did not provide the level of details and specifications at firm level that could be contrasted with the findings of the study to detect the possible implications and sourcing policy. Nor it would have been possible to carry out an extensive firm survey in the framework of this study.

In fact it is only with the findings of this study at hand that a meaningful firm survey could be conducted. This study has the merit of having clearly delimited what kind of industries may be most affected by TTIP PSROs and the specific products classified at heading and subheading level coupled with possible PSROs. This is exactly the kind of information that is needed to carry out a meaningful field survey on a manageable sample of enterprises. Moreover this exercise will be useful not only in the context of the TTIP but also for other negotiations scenarios. Once the sourcing policy of some most representatives firm is clearly depicted it would be easier to contrast it with other possible PSROs or RoO scenarios.

An earlier research[73] conducted in the framework of ASEAN-China Free trade area has shown initial results of this methodology that under the present research has been substantially enlarged.

Under this research initial observations were made looking at the trade data of ASEAN-China trade flows at subheading level of the HS and matching them with trade data of imports of ASEAN. In particular it found was that sub-heading 847330 of the Harmonized System classifying parts and accessories of computers was one the most imported and most exported item in 2002 among ASEAN countries and China.

The trade flows of this subheading captured the fact that there are significant assembly operations of parts or sub-components of computers between China and ASEAN. The analysis of these trade flows also revealed an intra-industry trade where China imports part of computers from ASEAN countries to assemble subcomponents classified in same the heading and exported to ASEAN.

Suppose that this intra-industry trend is confirmed following discussions with domestic industry and that a rule of origin is drafted in the following manner: (A) A change to heading 8473 from any other heading. This rule would practically mean that all assembly operations performed in China to manufacture sub-components from parts imported from ASEAN will not be considered as originating in China since the finished product is classified in the same heading.

[72] The following associations have been consulted: PD Dr. A. Schulz ETH Zurich Chair of Technology and Innovation Management, Swiss Center for Automotive Research [Swiss CAR] and Dr. E. Jandrasits, Trade Affairs, Science Industries Chemie-Pharma-Biotech.

[73] See: The ASEAN-China free trade area: Negotiating beyond eternity with little trade liberalization? Journal of World Trade Vol 39 no 3 June 2005.

Certainly cumulation could play its role if the parts imported from ASEAN are of ASEAN origin. If this is not the case alternative drafting could be considered by for instance utilizing a percentage criterion based on clear percentages and rules to calculate such as:

- no required change in tariff classification to heading 8473, provided there is a regional value content of not less than:
- 35 percent based on the build-up method, or
- 45 percent based on the build-down method.

Then correct methodologies to calculate the ad valorem percentages under the build-up or build- down methods will have to be identified.

Another example identified under the former research was related to HS sub heading 841430 classifying compressors that were the fifth most exported products to ASEAN by China. Matching this finding with China's imports from the World, it was observed that HS 8414 90 -parts of compressor- ranked as the 36th most imported product from USA and Japan. This observation showed that some parts of the compressors exported to ASEAN contain parts imported from outside the ASEAN-China Region. Thus, a rule of origin such as: *"A change to subheading 841430 from any other subheading, except from subheading 8414.90"*may entail that the compressors exported to ASEAN utilizing parts imported from Japan and USA will not comply with rules of origin requirements.

3.1. Analysis of input-output of Swiss components in the US and EU trade of selected HS chapters: possible impact of different sets of Rules of Origin

The findings below reports the results of the analysis conducted on the basis of the input/output methodology suggested by Inama[74]. The source of the data is 2011[75], the latest available year at six digit level of the COMTRADE database when this analysis started. The tariff data is extracted from UNCTAD/ITC/WTO common database. The tables are formatted to a common standard to allow easy reference and comparisons.

The analysis has been conducted by a sequenced approach to better identify the findings and to progressively narrow down the results of the analysis according to the following sequencing:

1] The first step is to show the results of a heading level input-output analysis combined with trade flows.

[74] Made in China or Made in Tlon ?The quest for a new origin concept measuring international trade and respecting consumers' rights,2013

[75] In terms of trade flows 2011 has been taken as reference year. However the whole period of the analysis has taken into consideration the trade flows of the latest three year covering 2009 to 2011.This means that the recurrence of continuous trade flows over the three year period of the tariff lines selected here below has been carried out i.e. has microtome the most exported tariff line from Switzerland to the EU for the latest three years?

2] A closer analysis has been conducted at sub-heading level of input/output among the chapters[76]. Given the amount of tariff lines and the complex matching involved[77], only selected subheadings have been extracted.

3] The selected heading and/or subheadings have been matched with the correspondent product specific rules of origin contained in NAFTA, other relevant US negotiated FTA and the EU-South Korea FTA and EU-Singapore FTA.

4] The individual findings or assumptions identified are, to the extent possible, validated and contrasted with phone interviews with associations of the industry concerned[78].

3.1.1. Findings from tariff and data analysis

A first analysis of the overall trade flows for the selected chapters of the HS provides some useful insights. The most evident observation emerges from Chapter 30 pharmaceuticals representing a significant portion of the EU exports to US [10.45 %] totaling almost 38.7 $ billion that is MFN duty free in the US tariff schedule. This finding means that RoO in the context of the TTIP will not have implications for this HS chapter except for those 2 tariff lines that are dutiable showing an amount of EU exports of 37$ Million. Trade flows in Chapter 30 are also relevant for the Swiss exports to EU amounting to 27$ billion and are also duty free in the EU by virtue of the understanding among a group of WTO members at the end of the Uruguay round.

The amount of MFN duty-free trade in the US market is also significant, albeit at more reduced level, for HS chapter 29[7.2 %] amounting to 3.2$ billion. The average preferential margin for the remaining dutiable trade is 2.5%.

The portion of MFN duty free treatment in the US market is also preponderant for chapter 90 representing 17$ billion out of a total value of exports from the EU to US of 24$ billion. The amount of dutiable trade in this HS chapter is equivalent to 7'1 billion.

HS Chapter 87 [vehicles] is, with pharmaceutical products, the second most important in terms of absolute trade flows and the chapter where most dutiable products are contained.

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[76] Given that the chapters selected in this study are complex and the movement from a heading or subheading of given chapter to another heading or subheading of the same chapter may involve significant manufacturing, this second step of the analysis attempts to identify such occurrences. In so doing this part of the analysis does take into considerations materials and components of the same chapters that may be used in the manufacture of a specific product of the same chapter .For example heading 2923 classify ammonium salts and hydroxides that may be derived from ammonia of heading 2814 and other ketones of heading 2914.This second part of the analysis aims at first detect whether ammonium salts of heading 2923 is exported from EU to the US and then to identify whether ketones of heading 2914 classified in the same chapter is exported from Switzerland to the EU. In so doing this part of the analysis does not capture the fact that heading 2814 could also be used since this has been already dealt with in the first part of the analysis under [1]

[77] This caveat holds especially true for chapter 29 given the complexity of the chapter and the amount of chemical reactions that may take place among the different chemicals compounds.

[78] In particular the following associations have been consulted: PD Dr. A. Schulz, ETH Zurich Chair of Technology and Innovation Management Swiss Center for Automotive Research [Swiss CAR] and Dr. E. Jandrasits, Trade Affairs, Science Industries Chemie-Pharma-Biotech.
As explained in the preceding section it is strongly recommended to carry out a firm-level survey on the basis of the findings of this study.

HS Chapter 29 [chemicals] and HS chapter 87 [vehicles] together represent by far the most important dutiable chapters in EU-US trade with a total of 58.7 billion .The amount of corresponding trade in these chapters of potential Swiss inputs is significant in the case of HS chapter 29 totaling 13.2$ billion and to a less extent for the Swiss automotive sector with trade flows to the EU accounting for close to 2$ billion.

The findings of this preliminary analysis of tariff and trade flows have resulted in the focusing the remaining of the study on the dutiable tariff lines analysis of most exported products to the US by the EU and the corresponding trade flows from Switzerland to the EU. The tables of these most exported dutiable products are contained in Annex 1. Annex 2 contains the most exported products from the EU to the US that are MFN duty free in the US tariff schedule.

Annex 3 and Annex 4 contain analogous tariffs and trade data in the other direction of trade Switzerland-US-EU.

Table 7: US – EU – CHE Trade in HS Chapters 29, 30, 87 and 90

HS Chapter		Trade Year	Tariffs Year	No of Tariff Lines			US Imports from EU-27					Swiss Exports to EU-27		
Code	Description			Total No of Tariff Lines	Tariff Lines Duty Free	Tariff Lines Duti-able	Total Value of Imports ($ 000)	Value of Imports Duty Free ($ 000)	Value of Imports Dutiable ($ 000)	Share of Tot. Imp. in Totals 2 (%)	Share of Tot. Imp. in Totals 1 (%)	Total Value of Exports ($ 000)	Share of Tot.Exp. in Totals 2 (%)	Share of Tot.Exp. In Totals 1 (%)
1	2	3	4	5	6	7	8	9	10	12	13	14	15	16
29	Organic chemicals	2011	2013	714	186	528	26 962 187	3 222 803	23 739 384	7,28	20,94	13 265 675	9,93	25,60
30	Pharmaceutical products	2011	2013	40	38	2	38 704 348	38 667 253	37 095	10,45	30,06	27 211 456	20,36	52,52
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	2011	2013	177	87	90	38 144 291	3 137 831	35 006 460	10,30	29,63	1 979 984	1,48	3,82
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	2011	2013	284	133	151	24 945 779	17 775 316	7 170 463	6,74	19,37	9 355 603	7,00	18,06
	TOTALS 1 - FOR CHAPTERS 29, 30, 87, 90 :	**2011**	**2013**	**1 215**	**444**	**771**	**128 756 605**	**62 803 203**	**65 953 402**	**34,77**	**100,00**	**51 812 718**	**38,77**	**100,00**
	TOTALS 2 - FOR ALL PRODUCTS:	**2011**	**2013**				**370 348 568**			**100,00**		**133 637 482**	**100,00**	

3.1.2. Methodology applied in examining the results of the input/output tables

For each HS chapter examined in the study, the results of the input/output tables have been examined excerpting, as a general rule, the headings showing the highest trade flows of EU exports to the US and the highest trade flows of EU imports from Switzerland. These are the headings where it is most likely that the inputs imported from Switzerland may be used in manufacturing products in the EU for exports to the US.

To better focus and present the findings, the results of the input/output tables at HS heading level have been confronted with the tables of annex 1 of the most exported products from the EU to the US at subheading level in order to:

A] Identify whether these subheadings are dutiable in the US market, and

B] To better match the applicable PSROs

Column 13 of the input-output tables contains total imports *normalized*. The amounts shown in this column are the results of an assumption. Since imports of one heading of the HS may be used for manufacturing different products, the total amount of trade under that heading is split among the different headings of whole HS where that heading is indicated as a possible heading to be used as input for a finished product. For example HS heading 2907 can be used to manufacture products of sub-headings of 2907, and heading of 2908 and 2909. Since it is not possible to apportion the amount of imports to one heading instead of another one, the total imports for heading 2907 are split by default among those heading where heading 2907 can be used as an input.

3.1.3. Examination of input–output for HS Chapter 29

As shown in Table 8, the most important headings showing considerable trade flows in terms of input from Switzerland and output from the EU to the US are the following:

2902 Cyclic hydrocarbons

2922: Oxygen-function amino-compounds

2924 : Carboxyamide-function compounds; amide-function compounds of carbonic acid

2932 and **2933** - Heterocyclic compounds

2934: Nucleic acids and their salts, whether or not chemically defined; other heterocyclic compounds

2937 Hormones, prostaglandins, natural or reproduced by synthesis; derivatives and structural analogues thereof, including chain modified polypeptides, used primarily as hormones

As discussed above in section 3.1.2 to better focus and present the findings, the results of the matrix at HS heading level have been confronted with the tables of annex 1 of the most exported products from the EU to the US at subheading level in order to:

A] Identify whether these subheadings are dutiable in the US market, and

B] To better match the applicable PSROs.

In fact, as shown in Table 9, many of the PSRO in NAFTA for chapter 29 are set at subheading level.

This preliminary analysis has permitted to establish that all the subheadings of heading 2902 are MFN duty free in the US Tariff schedule .Thus they have not been further object of observations in this study.

Conversely, various subheadings of Heading 2922 like subheading 292250: Amino-alcohol/acid-phenols; amino-compounds with oxygen function, nes[79] are dutiable with a MFN rate of 6.5%. When confronted with the table of most exported products contained in annex 1 subheading 292250 turns out to be fourth most exported subheading from the EU to the US at subheading level with a significant amount of possible trade inputs from Switzerland as shown in the input /output Table 8.

At the same time NAFTA sets a PSRO at subheading level 292250 as follows:
(A) A change to subheading 2922.50 from any other heading, except from headings 2905 through 2921; or (B) A change to subheading 2922.50 from any other subheading within heading 2922 or headings 2905 through 2921, whether or not there is also a change from any other heading, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used.

The result of this cross-analysis among the results of the input/output table, the most exported dutiable products in the US at subheading level contained in annex 1 and the PSROs contained in various FTAS signed by the US and the EU is summarized in the table here below containing a comparison of relevant PSROs applicable.

Table 9 provides an overview of the applicable PSROs for the most important headings and subheadings of chapter 29 under NAFTA, the US-Singapore FTA, US- South Korea FTA, the EU- South Korea FTA and EU-Switzerland FTA to assess what kind of implications may arise for Swiss producers in the case where similar PSROs under these FTAs are applied in the context of the TTIP.

The following is the result of the analysis and comparisons made at HS heading and subheading level:

[79] *Nes*: stands for *Not-elsewhere-specified*.

Table 8: Results of the input-output table for chapter 29

HS Definition	Total Exports of EU to USA		Nbr. of Exp. Contrib. Members	Principal EU Members Contributing in Exports (with their respective ISO3 codes and shares in total exports of the product)						Main Inputs	Total EU Imports from Switzerland ($000)	Total Imports Normalized ($000)	Nbr. of Imp. Contrib. Members	Principal EU Members Contributing in Imports (with their respective ISO3 codes and shares in total imports of the product)					
				1st Destin.		2nd Destin.		3rd Destin.						1st Supplier		2nd Supplier		3rd Supplier	
	Value ($ 000)	Share in All Exports of HS Chapter (%)		ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	HS Definition				ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2902	367 970	1,5	14	NLD	69,9	GBR	9,5	DEU	4,7	2709,2710	466 582	66 654	27	DEU	22,3	BEL	19,4	NLD	17,4
2903	179 454	0,7	13	DEU	41,7	NLD	19,6	BEL	16,5	2901,2902,2801	23 247	1 755	21	DEU	55,6	FRA	40,5	NLD	1,0
2904	35 115	0,1	11	FRA	21,0	POL	19,8	DEU	19,1	2901,2902,2802	22 987	1 668	21	DEU	55,5	FRA	40,9	NLD	1,0
2905	156 421	0,6	20	DEU	47,0	BEL	18,1	NLD	11,1	2901	4 263	328	17	DEU	77,9	FRA	15,4	NLD	3,1
2906	65 888	0,3	12	DEU	54,6	NLD	20,9	ESP	9,3	2902	18 711	1 337	20	DEU	50,3	FRA	46,7	ITA	1,1
2907	49 032	0,2	12	DEU	44,0	ESP	31,1	GBR	10,6	2707.10,2902	39 423	5 479	20	NLD	45,6	DEU	31,1	FRA	22,2
2908	8 787	0,0	10	DEU	48,0	GBR	42,5	HUN	7,5	2907	91 918	6 128	14	DEU	54,6	FRA	15,6	GBR	9,3
2909	112 700	0,5	15	DEU	31,1	NLD	26,4	BEL	12,6	2907	91 918	6 128	14	DEU	54,6	FRA	15,6	GBR	9,3
2910	51 789	0,2	10	NLD	71,4	ITA	19,9	DEU	4,7	2909	11 236	1 021	23	DEU	29,7	GBR	20,1	SWE	17,4
2911	3 139	0,0	6	ESP	40,8	DEU	31,6	BEL	15,0	2912	37 259	2 329	17	DEU	45,4	FRA	21,2	GBR	12,7
2912	82 756	0,3	12	DEU	53,9	GBR	27,6	ESP	9,8	2207,2208,2905	49 049	9 578	26	DEU	36,2	NLD	16,4	FRA	15,2
2913	1 690	0,0	3	DEU	69,0	GBR	19,5	BEL	11,4	2912	37 259	2 329	17	DEU	45,4	FRA	21,2	GBR	12,7
2914	218 771	0,9	16	NLD	41,2	DEU	29,9	FRA	10,1	2905	33 404	1 953	23	DEU	41,0	FRA	15,7	GBR	11,0
2915	236 218	1,0	16	DEU	43,1	NLD	22,9	BEL	12,9	2912,20720,290224,	38 368	2 382	20	DEU	45,6	FRA	21,5	GBR	12,4
2916	249 259	1,0	16	BEL	36,1	DEU	32,1	GBR	12,5	2912,20720,290224,	38 368	2 382	20	DEU	45,6	FRA	21,5	GBR	12,4
2917	112 759	0,5	13	NLD	46,5	ESP	14,1	ITA	13,0	2912,20720,290224,	38 368	2 382	20	DEU	45,6	FRA	21,5	GBR	12,4
2918	209 041	0,8	20	DEU	25,7	GBR	19,3	ITA	16,7	2912,20720,290224,	38 368	2 382	20	DEU	45,6	FRA	21,5	GBR	12,4
2919	29 182	0,1	13	DEU	68,6	GBR	21,3	NLD	5,8	2905,2906,2907,291	348 598	21 520	27	DEU	41,4	FRA	20,7	GBR	12,0
2920	92 806	0,4	14	GBR	40,0	FRA	30,5	DEU	13,8	2905,2906,2907,291	348 598	21 520	27	DEU	41,4	FRA	20,7	GBR	12,0
2921	307 489	1,2	21	BEL	40,1	DEU	22,3	ITA	15,0	2814	2 076	415	7	DEU	48,6	FRA	46,4	ITA	4,1
2922	1 688 364	6,8	19	IRL	58,1	GBR	26,0	DEU	5,1	2905,2906,2907,291	348 598	21 520	27	DEU	41,4	FRA	20,7	GBR	12,0
2923	52 711	0,2	14	CZE	40,2	DEU	18,9	NLD	17,8	2814,2914	76 949	7 222	22	DEU	38,0	FRA	26,3	GBR	13,1
2924	275 786	1,1	16	PRT	29,2	DEU	27,8	BEL	13,5	2918,2836	190 510	11 520	27	DEU	34,2	FRA	22,7	GBR	14,4
2925	74 953	0,3	11	ESP	49,5	DEU	26,7	FRA	16,8	2915,2916,2917,291	325 997	21 460	27	DEU	36,7	FRA	17,1	GBR	12,9
2926	141 272	0,6	12	GBR	55,1	DEU	17,3	NLD	17,0	2814,2905	35 480	2 368	23	DEU	41,4	FRA	17,5	GBR	10,4
2927	20 152	0,1	7	IRL	60,9	BEL	13,7	FRA	13,2	2921,2086	114 946	9 579	23	GBR	36,5	DEU	20,4	ESP	11,4
2928	35 722	0,1	11	ITA	69,7	ESP	10,8	HUN	9,9	29212922,2229	.	.	.		.		.		.
2929	53 017	0,2	15	DEU	66,2	BEL	23,9	GBR	3,9	2921,2922,2229	519 266	46 335	25	DEU	39,3	ITA	24,6	GBR	11,0
2930,2931	425 643	1,7	20	DEU	45,6	GBR	13,7	FRA	11,5	2802,2701,2709,2710,2711	495 467	72 432	27	DEU	22,6	BEL	18,2	NLD	16,4
2932,2933	8 721 013	35,4	22	IRL	41,3	BEL	25,8	GBR	17,8	2915,2916,2917,2918,2919	325 997	21 460	27	DEU	36,7	FRA	17,1	GBR	12,9
2934	7 167 795	29,1	22	IRL	61,4	GBR	23,3	BEL	5,8	2809,2932,2933	4 117 970	377 687	27	ITA	29,8	ESP	28,7	DEU	16,6
2935	1 345 028	5,5	12	IRL	76,7	GBR	9,2	BEL	7,3	2930,	58 053	5 278	18	GBR	28,3	FRA	25,2	DEU	22,2
2936	85 122	0,3	15	ITA	33,1	DEU	16,1	FRA	15,1	2905,2906,2915,291	378 168	24 737	27	DEU	36,9	FRA	18,4	GBR	12,5
2937	771 231	3,1	16	SWE	38,5	GBR	31,8	ITA	5,8	29	13 265 675	1 193 626	27	DEU	28,1	ITA	25,8	AUT	12,9
2939	365 508	1,5	13	DEU	82,1	GBR	5,5	ITA	3,7	29	13 265 675	1 193 626	27	DEU	28,1	ITA	25,8	AUT	12,9
2940	55 886	0,2	16	DEU	36,1	AUT	24,3	FRA	8,7	1702	3 045	381	22	DEU	40,6	NLD	21,1	FRA	15,8
2941	294 570	1,2	16	ITA	41,1	DNK	15,0	FRA	13,4	29	13 265 675	1 193 626	27	DEU	28,1	ITA	25,8	AUT	12,9
2943	.	.	.		.		.		.	29	13 265 675	1 193 626	27	DEU	28,1	ITA	25,8	AUT	12,9

HS2902 Cyclic hydrocarbons

The NAFTA PSRO is the most restrictive and may cause some trade diverting effects since NAFTA rule is excluding different headings that the input /ouput table has shown as possible inputs for manufacturing products classified in heading 2902. The PSROs in US-Singapore and US- Korea is substantially more liberal than NAFTA as it allows CTSH. The PSROs in the EU agreements provides for a CTH that is less liberal than the CTSH in the later US agreements mentioned above. It has to be noted that the EU-South Korea percentage [50%] if more liberal that the one of the EU-Switzerland [40%].

HS2922: Oxygen-function amino-compounds

Same comments as above.

HS2924 - Carboxyamide-function compounds; amide-function compounds of carbonic acid

NAFTA PSRO is again the most restrictive PSRO having potential trade diverting effects. The subsequent US FTA with Singapore and South Korea are more liberal allowing a CTSH. The EU rules of origin in the EU-Swiss and EU Korea are less liberal than the later US PSROs mentioned above since they require CTH and a threshold of 20% of non- originating materials classified in the same heading or a 40% limit of non- originating materials.

HS2932 and **2933** - Heterocyclic compounds

NAFTA PSRO is again the most restrictive PSRO having potential trade diverting effects. The subsequent US FTA with Singapore and South Korea are much more liberal allowing a CTSH for HS headings 2932, 2933 and 2934 with the US-Singapore less liberal for HS subheading 293290 since it includes an exception to the CTSH[3301.90] The EU PSROs are once again less liberal than the US PRSO in the latter agreements. The requirement not to exceed 20% of non- originating materials may have trade diverting effects. The positive exceptions are cyclic acetals where the EU rule manufacture from any heading is similar to the US CTSH rule.

HS2934: Nucleic acids and their salts, whether or not chemically defined; other heterocyclic compounds

Same comments as above.

HS2937 Hormones, prostaglandins, natural or reproduced by synthesis; derivatives and structural analogues thereof, including chain modified polypeptides, used primarily as hormones.

The NAFTA PSRO is potentially trade diverting since it excludes a number of inputs classified in different HS chapters, including chapter 29. The PSRO included in the US-Singapore is more liberal allowing a CTH while the US-Korea is by far more liberal allowing CTSH. The EU PSROs are once again stricter that the latest US formulation since they require CTH and only allow the use of non-originating materials classified in the same heading up to 20%.

Table 9: Comparative PSROs applicable to selected headings and subheading of HS Chapter 29

Headings and subheadings	NAFTA	US-Singapore FTA[80]	US- Korea	EU-South Korea	EU-Switzerland
2922 2922.50 2922.19[81] 2922.49[82]	(A) A change to subheading 2922.50 from any other heading, except from headings 2905 through 2921; or (B) A change to subheading 2922.50 from any other subheading within heading 2922 or headings 2905 through 2921, whether or not there is also a change from any other heading, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used.	A change to subheading 2922.11 through 2922.50 from any other subheading, including another subheading within that group.	A change to subheadings 2920.10 through 2926.90 from any other subheading.	Manufacture from materials of any heading, except that of the product. However, materials of the same heading as the product may be used, provided that their total value does not exceed 20% of the ex-works price of the Product or Manufacture in which the value of all the materials used does not exceed 50% of the ex-works price of the product	Manufacture from materials of any heading, except that of the product. However, materials of the same heading as the product may be used, provided that their total value does not exceed 20% of the ex-works price of the Product or Manufacture in which the value of all the materials used does not exceed 40% of the ex-works price of the product
2924 2924.29 2924.19	(A) A change to subheadings 2924.24 through 2924.29 from any subheading outside that group, except from subheadings 2917.20 or 2924.23; or(B) A change to subheadings 2924.24 through 2924.29 from subheading 2917.20 or from 2-acetamidobenzoic acid(N-	A change to subheadings 2924.11 through 2924.29 from any other subheading, including another subheading within that group	As above	As above	As above

[80] As In the case of the US- CAFTA FTA, the following chapter rule RoO apply for Chapter 29: Chapter rule 1*: Any good of chapter 29 that is a product of a chemical reaction, as defined in subdivision (n)(v) of this note, shall be considered to be an originating good if the chemical reaction occurred in the territory of Singapore or of the United States*. Subdivision (n)(v) provides as follows *: For purposes of applying this note to goods of chapters 27 through 40, inclusive, of the tariff schedule, a "chemical reaction" is a process (including a biochemical process) which results in a molecule with a new structure by breaking intramolecular bonds and by forming new intramolecular bonds, or by altering the spatial arrangement of atoms in a molecule. The following are not considered to be chemical reactions for purposes of this note:*
(A) dissolving in water or other solvents;
(B) the eliminating of solvents including solvent water; or
(C) the addition or elimination of water of crystallization.
A chemical reaction as defined above is considered to result in an originating good for purposes of this note. Notwithstanding any of the change of tariff classification rules of subdivision (o) of this note, this "chemical reaction rule" may be applied to any good classified in chapters 28 through 40, inclusive

[81] The following is the NAFTA PSRO for 2922.19:(*A) A change to subheadings 2922.14 through 2922.19 from any other heading, except from headings 2905 through 2921; or (B) A change to subheadings 2922.14 through 2922.19 from any subheading outside that group within heading 2922 or headings 2905 through 2921, whether or not there is also a change from any other heading, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used*.

[82]

Headings and subheadings	NAFTA	US-Singapore FTA[80]	US- Korea	EU-South Korea	EU-Switzerland
	acetylanthranilic acid) of subheading 2924.23, whether or not there is also a change from any subheading outside that group, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used.				
2932 2932.99 2932.29[83]	A change to subheadings 2932.95 through 2932.99 from any other heading; or (B) A change to subheadings 2932.95 through 2932.99 from any subheading outside that group within heading 2932,whether or not there is also a change from any other heading, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used	A change to subheadings 2932.11 through 2932.99 from any other subheading, including another subheading within that group, except from subheading 3301.90.	A change to subheadings 2932.11 through 2934.99 from any other subheading	Chapter rule as above except **ex 293**2 – Internal ethers and their halogenated, sulphonated, nitrated or nitrosated derivatives Manufacture from materials of any heading. However, the value of all the materials of heading 2909 used shall not exceed 20% of the ex-works price of the product or manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product and – Cyclic acetals and internal hemiacetals and their halogenated, sulphonated, nitrated or nitrosated derivatives: Manufacture from materials of any heading	Manufacture from materials of any heading. However, the value of all the materials of heading 2909 used shall not exceed 20% of the ex-works price of the product or Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product – Cyclic acetals and internal hemiacetals and their halogenated, sulphonated, nitrated or nitrosated derivatives: Manufacture from materials of any heading
2933 2933.59 2933.99[84]	A) A change to subheadings 2933.55 through 2933.59 from any other heading; or (B) A change to subheadings 2933.55 through 2933.59 from any subheading outside that group within heading 2933,whether or not there is also a change from any other heading, provided there is a regional value content of not less than:(1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is	A change to subheadings 2933.11 through 2933.99 from any other subheading, including another subheading within that group.		Manufacture from materials of any heading. However, the value of all the materials of headings 2932 and 2933 used shall not exceed 20 % of the ex-works price of the product Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product	As in EU- South Korea FTA

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84 (A) A change to subheadings 2933.91 through 2933.99 from any other heading; or (B) A change to subheadings 2933.91 through 2933.99 from any subheading outside that group within heading 2933, whether or not there is also a change from any other heading, provided there is a regional value content of not less than:(1) 60 percent where the transaction value method is used, or
(2) 50 percent where the net cost method is used.

Headings and subheadings	NAFTA	US-Singapore FTA[80]	US- Korea	EU-South Korea	EU-Switzerland
	used.				
2934 2934.99 2934.10[85] 2934.20[86]	A) A change to subheadings 2934.91 through 2934.99 from any subheading outside that group; or (B) A change to nucleic acids of subheadings 2934.91 through 2934.99 from other heterocyclic compounds of subheading 2934.91 through 2934.99.	A change to subheadings 2934.10 through 2934.99 from any other subheading, including another subheading within that group	As above	Manufacture from materials of any heading. However, the value of all the materials of headings 2932, 2933 and 2934 used shall not exceed 20 % of the ex-works price of the product Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product	As in the EU-South Korea Agreement
2937	A) A change to subheadings 2937.11 through 2937.90 from any other chapter, except from chapters 28 through 38; or (B) A change to subheadings 2937.11 through 2937.90 from any other subheading within chapters 28 through 38, including another subheading within that group, whether or not there is also a change from any other chapter, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used.	A change to headings 2937 through 2941 from any other heading, including another heading within that group.	A change to subheadings 2937.11 through 2941.90 from any other subheading.	Manufacture from materials of any heading, except that of the product. However, materials of the same heading as the product may be used, provided that their total value does not exceed 20% of the ex-works price of the product Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product	Manufacture from materials of any heading, except that of the product. However, materials of the same heading as the product may be used, provided that their total value does not exceed 20% of the ex-works price of the product Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product

[85] A change to subheadings 2934.10 through 2934.30 from any other subheading, including another subheading within that group

[86] as above footnote

3.1.4. Examination of input –output for Chapter 30

Table 10: Results of the input-output table for chapter30

HS Definition	Total Exports of EU to USA		Nbr. of Exp. Contrib. Members	Principal EU Members Contributing in Exports (with their respective ISO3 codes and shares in total exports of the product)						Main Inputs	Total EU Imports from Switzerland ($000)	Total Imports Normalized ($000)	Nbr. of Imp. Contrib. Members	Principal EU Members Contributing in Imports (with their respective ISO3 codes and shares in total imports of the product)					
				1st Destin.		2nd Destin.		3rd Destin.						1st Supplier		2nd Supplier		3rd Supplier	
	Value ($ 000)	Share in All Exports of HS Chapter (%)		ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	HS Definition				ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3001	86 050	0,2	18	ESP	43,8	NLD	18,9	DEU	17,7	01,02	104 913	14 280	21	DEU	57,0	FRA	34,1	NLD	2,1
3002	9 349 414	23,5	19	IRL	52,1	BEL	15,1	DEU	8,4	01,02	104 913	14 280	21	DEU	57,0	FRA	34,1	NLD	2,1
3003	1 737 804	4,4	15	GBR	70,2	IRL	16,7	BEL	8,2	2941,2937,3003	4 353 488	383 043	23	AUT	36,8	ITA	32,6	DEU	21,6
3004	27 071 177	68,0	24	DEU	21,0	BEL	20,5	IRL	20,0	2941,2937,3003	4 353 488	383 043	23	AUT	36,8	ITA	32,6	DEU	21,6
3005	419 112	1,1	15	BEL	25,1	DEU	17,3	GBR	16,5	3003,5907,5208,551	270 862	35 186	27	DEU	30,8	ITA	19,6	BEL	14,4
3006	1 147 777	2,9	22	DEU	40,8	NLD	19,3	GBR	12,3	29,3003,3004	28 562 034	16 398 848	27	DEU	24,1	ITA	17,5	FRA	10,7

Table 11: Comparative PSROs applicable to selected headings and subheading of HS Chapter 30

Headings and sub-headings	NAFTA	US-Singapore	US-Korea	EU-Switzerland	EU-South Korea
300691	A change to subheading 3006.91 from any other heading, except from subheading 3006.92, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used	A change to subheadings 3006.20 through 3006.92 from any other subheading, including another sub-heading within that group.	A change to subheadings 3005.10 through 3006.92 from any other subheading	Manufacture from materials of any heading, except that of the product. However, materials of the same heading as the product may be used, provided that their total value does not exceed 20% of the ex-works price of the product	Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product

The US-Korea and US-Singapore are the most liberal PSRO allowing CTSH while the NAFTA PSRO only allows a CTH and exclude subheading 3006.92. The EU PSRO are also quite restrictive and potentially trade diverting requiring not to exceed 50% of non-originating material in the case of the EU South Korea and in the EU-Swiss a CTH with the limitation of 20% of non-originating materials classified in the same heading.

3.1.5. Examination of input –output for Chapter 87

Table 12: Results of the input-output table for chapter 87

HS Definition	Total Exports of EU to USA		Nbr. of Exp. Contrib. Members	Principal EU Members Contributing in Exports (with their respective ISO3 codes and shares in total exports of the product)						Main Inputs	Total EU Imports from Switzerland ($000)	Total Imports Normalized ($000)	Nbr. of Imp. Contrib. Members	Principal EU Members Contributing in Imports (with their respective ISO3 codes and shares in total imports of the product)					
				1st Destin.		2nd Destin.		3rd Destin.						1st Supplier		2nd Supplier		3rd Supplier	
	Value ($ 000)	Share in All Exports of HS Chapter (%)		ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	HS Definition				ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)
8701	955 605	2,5	12	DEU	42,1	GBR	24,3	FRA	18,3	8707,8708,8407,8408	1 315 437	96 605	26	DEU	56,3	FRA	21,0	AUT	4,9
8702,870	27 994 516	72,1	25	DEU	70,6	GBR	14,1	BEL	4,0	8707,8708,8407,840	1 315 437	96 605	26	DEU	56,3	FRA	21,0	AUT	4,9
8704	520 200	1,3	19	GBR	61,1	DEU	32,9	FIN	3,7	8706,8707,8708,840	1 318 738	97 077	26	DEU	56,3	FRA	21,0	AUT	4,9
8705	337 916	0,9	15	DEU	89,4	NLD	5,1	AUT	1,1	8707,8708,8407,840	1 315 437	96 605	26	DEU	56,3	FRA	21,0	AUT	4,9
8706	6 248	0,0	7	DEU	83,5	GBR	8,1	CZE	5,9	8407,8408	227 590	18 887	22	DEU	50,9	FRA	24,6	AUT	19,9
8707	308 656	0,8	17	DEU	85,9	ITA	6,2	AUT	2,2	73,8707	2 731 149	87 748	27	DEU	47,0	FRA	11,2	AUT	8,4
8708	7 851 848	20,2	27	DEU	56,3	ITA	10,5	FRA	9,1	73,8708	3 813 404	165 036	27	DEU	50,0	FRA	13,8	AUT	6,6
8709	26 773	0,1	13	DEU	31,3	FRA	20,7	SWE	17,8	8707,8708,8407,840	1 418 828	117 551	27	DEU	53,5	FRA	21,6	AUT	4,9
8710	8 908	0,0	3	DNK	99,1	SVK	0,6	POL	0,3	8707,8708,8407,840	1 315 437	96 605	26	DEU	56,3	FRA	21,0	AUT	4,9
8711	394 552	1,0	22	DEU	38,7	ITA	27,1	AUT	22,8	8407,8501,8713,871	1 027 207	155 190	27	DEU	44,1	NLD	14,2	FRA	8,9
8713	8 149	0,0	12	SWE	60,0	DEU	22,7	ITA	6,7	8714,8501	981 600	119 260	27	DEU	41,4	NLD	13,7	FRA	8,8

HS870324 Automobiles with reciprocating piston engine displacing > 3000 cc

HS870323 Automobiles with reciprocating piston engine displacing 1500 cc to 3000 cc

Besides the peculiarities of the NAFTA rules or origin calculation methods and the tracing back discussed under section 2.3.4 the PSROs of NAFTA requires a rather high percentage of 50% calculated according to the net cost method. In comparison, the US- Korea FTA requires a lower percentage of 35% when the net cost method is used.
In addition the US- Singapore and US- Korea provide for alternative calculations of a percentage requirement of 30% and 35% respectively calculated according to the build-up method percentage of the adjusted value[87] of the car.
The percentage requirement of the build- up method is calculated according to the following formula:

$$RVC = \frac{VOM}{AV} \cdot 100 \geq 30\% \, [35\%]$$

Where the RVC is the Regional Value Content
AV is the Adjusted Value
VOM is the value of Originating Materials

Since the build-up method above is based on value of originating materials used in the manufacturing of the car, this rule implicitly requires that the remaining 70% [65%] is composed of non-originating materials, labour and factory overhead.

In addition the US-Korea FTA introduces a percentage requirement of 55% calculated according to the following build-down formula:

$$RVC = \frac{AV - VNM}{AV} \cdot 100 \geq 55\%$$

Where the RVC is the Regional Value Content
AV is the Adjusted Value
VNM is the value of Non Originating Materials

Practically, this rule is similar to the PSRO under the EU-South Korea FTA requiring not to exceed a threshold of 45% of non-originating materials out of the works price of the finished car. The main difference among the two rules is that that the EU percentage is drafted on the basis of not exceeding a given amount of non-originating material while the US percentage uses the same numerator of non-originating materials that has to be subtracted from the overall amount of adjusted value of the finished car.

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[87] The term "adjusted value" means the value determined in accordance with Articles 1 through 8, Article 15 and the corresponding interpretive notes of the Agreement on Implementation of Article VII of the General Agreement on Tariffs and Trade 1994 referred to in section 101(d)(8) of the Uruguay Round Agreements Act (19 U.S.C. 3511(d)(8)), adjusted, if necessary, to exclude any costs, charges or expenses incurred for transportation, insurance and related services incident to the international shipment of the merchandise from the country of exportation to the place of importation.

The main difference among these two calculation methods contained in the PSROs and, in general, in the calculation of the different percentages in the later US FTAs [NAFTA excluded] and the EU percentage calculations resides on the method used to assess the cost of materials, both originating and non-originating.

Under US later stream of FTAs negotiated after NAFTA the value of originating and non-originating materials may be adjusted as follows:

"for originating materials, the following expenses, if not included in the value of an originating material calculated under subdivision (A) above, may be added to the value of the originating material:
(I) the costs of freight, insurance, packing and all other costs incurred in transporting the material within or between the territory of Korea or of the United States, or both, to the location of the producer;
(II) duties, taxes and customs brokerage fees on the material paid in the territory of Korea or of the United States, or both, other than duties and taxes that are waived, refunded, refundable or otherwise recoverable, including credit against duty or tax paid or payable; and
(III) the cost of waste and spoilage resulting from the use of the material in the production of the good, less the value of renewable scrap or byproducts; and
(2) for non-originating materials, if included the value of a non-originating material calculated under subdivision(A) above, the following expenses may be deducted from the value of the non-originating material:
(I) the costs of freight, insurance, packing and all other costs incurred in transporting the material within or between the territory of Korea or of the United States, or both, to the location of the producer;
(II) duties, taxes and customs brokerage fees on the material paid in the territory of Korea or of the United States, or both, other than duties and taxes that are waived, refunded, refundable or otherwise recoverable, including credit against duty or tax paid or payable;
(III) the cost of waste and spoilage resulting from the use of the material in the production of the good, less the value of renewable scrap or by-products; or
(IV) the cost of originating materials used in the production of the non-originating material in the territory of Korea or of the United States, or both.

In contrast, the EU practice in calculating the value of non-originating materials is the CIF [Cost, insurance and freight] and does not allow the deduction of the cost of insurance and freight:

"Value of the non-originating materials means the customs value at the time of importation of the non-originating materials used, or, if this is not known and cannot be ascertained, the first ascertainable price paid for the materials in the EU Party or in Korea";

It is obvious that the inclusion of costs of insurance and freight is somewhat inflating the value of non-originating materials making the calculation somewhat more difficult to comply with. However in the specific case of Switzerland, this caveat is of less importance since costs of freight and insurance of car components into the EU are relatively minimal due to the geographical proximity.
It may be reasonably expected that the less trade diverting PSRO are those under the US-Korea FTA given the combination of more favorable thresholds and the differences in the value of materials calculations mentioned above. The EU- South Korea threshold of 45% is higher than the 40% under the EU- Switzerland FTA.

HS870899 Motor vehicle parts *nes*
The US-Korea PSRO for this subheading is by far more liberal and less trade diverting than the other PSROs. By allowing a CTSH it is possible to assemble parts classified in other subheading of heading 8708 into parts classified in this subheading.

In simple words, under this PSROs, all Swiss parts of cars imported into the EU can be assembled into parts of this subheading and acquire originating status for exports to the US under the TTIP [As example, Swiss parts classified in subheading 870829, Parts and accessories of bodies nes for motor vehicles and subheading 870894 Steering wheels, steering columns and steering boxes for motor vehicles can be assembled in the EU and acquire originating status].

In comparison both NAFTA and US-Singapore do not allow such a CTSH and required in addition the compliance with a RVC of 50 % with a net cost calculation and 30% with a build-up calculation. The EU PSROs requires not to exceed 40% and 45% out of the ex-works price, a rather restrictive approach for parts of cars. Apart from the PSROs under the US Korea, all other PSROs for this subheading appear to have a potential trade diversion effect.

HS870840 Transmissions for motor vehicles

HS870850 Drive axles with differential for motor vehicles

HS870829 Parts and accessories of bodies nes for motor vehicles

For all these above mentioned subheadings that are different parts of a car that could be incorporated into a car of HS heading 8703 the comments made for the HS sub-heading 870899 above are valid. The US-Korea PSROs allowing a CTSH recognizes as origin conferring an assembly operation of the parts classified into different subheadings into a different subheading. For instance in the case of HS subheading 870895 classify part of steering wheel that can be assembled into a completed steering wheel of HS subheading 870894.The same however is not possible with HS subheading 870840 since parts of gearboxes and the finished gearbox is classified in the same HS subheading 870840**.**It may still however possible to use materials classified in other HS subheadings such as 870899.The same would not have been possible in the case of NAFTA or US Singapore unless the RVC content is complied with as specified in the table below.

Table 13: Comparative PSROs applicable to selected headings and subheading of HS Chapter 87

Headings and subheadings	NAFTA	US-Singapore FTA	US-Korea	EU-South Korea	EU-Switzerland
870324	A change to subheadings 8703.21 through 8703.90 from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method	A change to heading 8703 from any other heading, provided there is a regional value content of not less than 30 percent based on the build-up method.	No change in tariff classification to a good of headings 8701 through 8706 is required, provided that there is a regional value content of not less than: (A) 35 percent under the build-up method; or (B) 55 percent under the build-down method; or (C) 35 percent under the net cost method.	Manufacture in which the value of all the materials used does not exceed 45 % of the ex-works price of the product	Manufacture in which the value of all the materials used does not exceed 40% of the ex-works price of the product
870323	A change to subheadings 8703.21 through 8703.90 from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method	As above	As above		As above
870899	A change to subheading 8708.99 from any other heading; or (B) No required change in tariff classification to subheading 8708.99, provided there is a regional value content of not less than 50 percent under the net cost method	A) A change to subheading 8708.99 from any other heading; or (B) A regional value content of not less than 30 percent based on the build-up method, whether or not there is a change in tariff classification	(A) A change to subheadings 8708.10 through 8708.99 from any other subheading; or (B) No change in tariff classification to a good of such subheadings is required, provided that there is a regional value content of not less than: (1) 35 percent under the build-up method; (2) 55 percent under the build-down method; or (3) 35 percent under the net cost method.	Manufacture from materials of any heading, except that of the product or Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product	As above
870840	A change to gear boxes of subheading 8708.40 from any other heading; (B) A change to gear boxes of subheading 8708.40 from any other good of subheading 8708.40 or 8708.99, whether or not there is	(A) A change to subheading 8708.40 from any other heading; or (B) A change to gear boxes of subheading 8708.40 from parts of subheading 8708.40 or from subheading 8708.99,	As above	As above	As above

Headings and subheadings	NAFTA	US-Singapore FTA	US-Korea	EU-South Korea	EU-Switzerland
	also a change from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method; (C) A change to any other good of subheading 8708.40 from any other heading; or (D) No required change in tariff classification to any other good of subheading 8708.40, provided there is a regional value content of not less than 50 percent under the net cost method.	whether or not there is also a change from any other heading, provided there is a regional value content of not less than 30 percent based on the build-up method.			
870850[88]	(A) A change to drive-axles with differential, whether or not provided with other transmission components, for vehicles of heading 8703, of subheading 8708.50 from any other heading, except from subheadings 8482.10 through 8482.80; (B) A change to drive-axles with differential, whether or not provided with other transmission components, for vehicles of heading 8703, of subheading 8708.50 from subheadings 8482.10 through 8482.80 or parts of drive-axles of subheading 8708.50, whether or not there is also a change from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method; (C) A change to other drive-axles with dif-	(A) A change to subheading 8708.50 from any other heading, except from subheadings 8482.10 through 8482.80, or(B) A change to drive axles with differential, whether or not provided with other transmission components or to non-driving axles of subheading 8708.50 from parts of subheading 8708.50 or from subheadings 8708.99 or 8482.10 through 8482.80, whether or not there is also a change from any other heading, provided there is a regional value content of not less than 30 percent based on the build-up method	As above	As above	As above

88 (D) A change to other drive-axles with differential, whether or not provided with other transmission components, of subheading 8708.50 from subheading 8708.99, whether or not there is also a change from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method;
(E) A change to non-driving axles and parts thereof, for vehicles of heading 8703, of subheading 8708.50 from any other heading, except from subheadings 8482.10 through 8482.80;
(F) A change to non-driving axles and parts thereof, for vehicles of heading 8703, of subheading 8708.50 from subheadings 8482.10 through 8482.80 or 8708.99, whether or not there is also a change from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method;
(G) A change to other non-driving axles and parts thereof of subheading 8708.50 from any other heading;
(H) A change to other non-driving axles and parts thereof of subheading 8708.50 from subheading 8708.99, whether or not there is also a change from any other heading, provided there is a regional value content of not less than 50 percent under the net cost method;
(I) A change to any other good of subheading 8708.50 from any other heading; or
(J) No required change in tariff classification to any other good of subheading 8708.50, provided there is a regional value content of not less than 50 percent under the net cost method.

Headings and subheadings	NAFTA	US-Singapore FTA	US-Korea	EU-South Korea	EU-Switzerland
	ferential, whether or not provided with other transmission components, of subheading 8708.50 from any other heading;				
870829	(A) A change to subheading 8708.29 from any other heading; or (B) No required change in tariff classification to subheading 8708.29, provided there is a regional value content of not less than 50 percent under the net cost method	(A) A change to subheading 8708.29 from any other heading; or (B) A regional value content of not less than 30 percent based on the build-up method, whether or not there is a change in tariff classification	(A) A change to subheadings 8708.10 through 8708.99 from any other subheading; or (B) No change in tariff classification to a good of such subheadings is required, provided that there is a regional value content of not less than: (1) 35 percent under the build-up method; (2) 55 percent under the build-down method; or (3) 35 percent under the net cost method	As above	As above

3.1.6. Examination of input-output for HS Chapter 90

Table 14: Results of the input-output table for HS Chapter 90

HS Definition	Total Exports of EU to USA		Nbr. of Exp. Contrib. Members	Principal EU Members Contributing in Exports (with their respective ISO3 codes and shares in total exports of the product)						Main Inputs	Total EU Imports from Switzerland ($000)	Total Imports Normalized ($000)	Nbr. of Imp. Contrib. Members	Principal EU Members Contributing in Imports (with their respective ISO3 codes and shares in total imports of the product)					
				1st Destin.		2nd Destin.		3rd Destin.						1st Supplier		2nd Supplier		3rd Supplier	
	Value ($ 000)	Share in All Exports of HS Chapter (%)		ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	ISO3 Code	Exp. Share (%)	HS Definition				ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)	ISO3 Code	Imp. Share (%)
9001	710 564	2,7	26	GBR	45,9	IRL	21,5	DEU	21,2	39,70	5 062 157	724 892	27	DEU	47,6	FRA	10,5	ITA	10,4
9002	242 622	0,9	24	DEU	53,2	NLD	19,1	GBR	10,4	9001	202 769	12 673	26	DEU	67,8	FRA	12,0	AUT	6,0
9003	302 052	1,1	18	ITA	68,9	AUT	10,9	FRA	8,3	39,70	5 062 157	724 892	27	DEU	47,6	FRA	10,5	ITA	10,4
9004	550 258	2,1	23	ITA	92,3	FRA	4,6	DEU	1,6	9001,9003	236 087	23 779	26	DEU	63,7	FRA	15,1	AUT	5,6
9005	55 650	0,2	23	DEU	52,9	AUT	33,4	ITA	5,0	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9006	98 623	0,4	26	ITA	36,6	DEU	13,6	SWE	12,4	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9007	42 597	0,2	19	GBR	53,0	DEU	26,2	ITA	4,8	9001,9002,8519,	247 562	17 206	27	DEU	68,0	FRA	11,3	AUT	5,2
9008	7 183	0,0	16	ITA	35,9	GBR	35,7	DEU	19,9	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9010	26 350	0,1	17	DEU	26,2	DNK	22,3	FRA	21,7	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9011	190 367	0,7	16	DEU	91,9	NLD	2,3	GBR	2,0	9001,9002,9006,732	698 453	35 770	27	DEU	56,5	FRA	11,3	AUT	8,4
9012	198 705	0,7	18	CZE	36,7	NLD	33,4	DEU	16,3	9001,9002,9006	271 222	23 563	27	DEU	64,3	FRA	11,0	AUT	5,3
9013	662 452	2,5	26	DEU	40,3	GBR	40,0	SWE	7,7	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9014	610 570	2,3	23	GBR	32,3	FRA	29,3	DEU	19,6	9001,9002	238 724	15 439	27	DEU	68,9	FRA	11,1	AUT	5,3
9015	645 668	2,4	25	GBR	40,1	DEU	23,7	FRA	21,3	9001,9002,9015	435 608	81 067	27	DEU	63,4	FRA	9,9	GBR	4,9
9016	15 993	0,1	12	DEU	75,6	ITA	11,9	GBR	7,5	7013,7020,7326,761	847 545	52 875	27	DEU	44,2	FRA	11,1	AUT	10,8
9017	38 208	0,1	25	DEU	34,9	GBR	25,2	NLD	24,7	4421,3926,3917,73,	3 885 018	243 784	27	DEU	50,1	FRA	9,7	ITA	8,5
9018	6 574 931	24,6	27	DEU	37,1	IRL	27,7	NLD	8,7	73,9001,9002,3926,	5 269 902	725 682	27	DEU	48,6	FRA	9,5	ITA	7,9
9019	209 788	0,8	24	DEU	40,3	IRL	38,6	GBR	6,5	73,3926,9019	3 426 017	175 190	27	DEU	48,4	FRA	10,5	ITA	7,9
9020	86 682	0,3	19	GBR	40,1	DEU	29,7	FRA	16,7	4014,4016,3926,732	1 190 697	145 338	27	DEU	54,0	FRA	8,6	AUT	8,0
9021	4 849 281	18,1	26	IRL	49,7	DEU	14,1	BEL	13,6	7326,3926,9021	4 827 793	1 334 163	27	DEU	34,9	NLD	23,5	BEL	10,2
9022	2 782 056	10,4	21	DEU	49,2	NLD	21,1	FRA	13,9	7326,7626,9022	593 961	67 783	27	DEU	46,5	FRA	11,7	AUT	8,2
9023	110 958	0,4	21	GBR	29,2	DEU	27,0	SWE	12,0	9023	27 414	9 138	27	DEU	29,2	FRA	27,2	GBR	10,2
9024-	6 320 870	23,6	27	DEU	45,3	GBR	21,4	FRA	5,7	84,85,9024-9031,	26 612 657	6 492 003	27	DEU	46,3	FRA	10,6	ITA	7,5
9032	1 292 318	4,8	25	DEU	59,0	GBR	10,1	AUT	7,3	90,84,85,9032	33 444 996	8 756 634	27	DEU	44,3	FRA	10,2	NLD	7,7
9033	121 085	0,5	25	GBR	38,3	DEU	28,1	FRA	5,5	84,85,9033	24 140 834	5 668 062	27	DEU	45,5	FRA	10,4	ITA	7,6

HS902790 Microtomes[89]; parts & access of inst and app for physic or chem analysis, nes

Microtomes are the second most exported heading of Swiss products to the EU.As mentioned in the above description of this subheading parts of microtomes and the finished machinery are classified within the same subheading. All the PSROs contained in the table based on a CTC method of drafting PSROs require a CTH. It follows that under all US and EU FTAs PSROs assembly of parts of microtomes into a finished microtome is not origin conferring. These PSROs may be quite trade diverting if Swiss parts of microtomes are assembled in the EU and exported to the US. Only the US-South Korea rely on an exclusive CTC rule based on a CTH still not permitting such assembly of parts into the finished microtome. All other PSROs are requiring either a CTH or a percentage requirement. Such percentage may be quite demanding and generate trade diversion effects. The EU percentage under the EU- South Korea has been raised up to 50% from the 40% requirement of the EU-Switzerland FTA.

HS903180 Measuring or checking instruments, appliances and machines, nes

This subheading is the top most exported Swiss products to the EU and the second most exported dutiable product from the EU to the US .Parts of this HS sub-heading classified in 903190 are also the fourth most exported product of Switzerland to the EU.

Parts of HS subheading 903180 are classified in subheading 903190. It follows that the US-Singapore FTA with a CTSH PSROs provides for the most lenient rule recognizing assembly operations of parts into a complete article as an origin conferring operation. All other PSROs are demanding a CTH or a CTSH combined however with a RVC requirement that may have trade a diverting effect in the case where the EU producers are not able to meet the RVC requirements when using Swiss parts.

HS902290 Apparatus based on the use of X-rays or other radiations, nes; parts and accessories thereof

This subheading classifies parts and accessories of complete machinery of heading 9022. It is the first dutiable subheading exported from EU to the US.

The US-Korea and US Singapore allow the CTSH permitting the use of other subheadings of 9022. This PSRO appear to be quite lenient since it may allow assemble of parts from other subheadings of heading 9022. All other PSROs require a CTH or compliance with a percentage requirement that may lead to trade diverting effects.

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[89] A microtome (from the Greek *mikros*, meaning "small", and *temnein*, meaning "to cut") is a tool used to cut extremely thin slices of material, known as sections. Important in science, microtomes are used in microscopy, allowing for the preparation of samples for observation under transmitted light or electron radiation. Microtomes use steel, glass, or diamond blades depending upon the specimen being sliced and the desired thickness of the sections being cut. Steel blades are used to prepare sections of animal or plant tissues for light microscopy histology. Glass knives are used to slice sections for light microscopy and to slice very thin sections for electron microscopy. Industrial grade diamond knives are used to slice hard materials such as bone, teeth and plant matter for both light microscopy and for electron microscopy. Gem quality diamond knives are used for slicing thin sections for electron microscopy. Excerpted from Wikipedia

HS903190 Parts and accessories for measuring or checking instruments, appliances and machines nes

This subheading is the fourth most exported product from Switzerland to the EU and could be used as a component to manufacture machineries of HS subheading 903180.

The PSROs for this subheading are all requiring a CTH or compliance with a percentage requirement. The CTH rules means that assembly of parts into parts classified in the same heading is not origin conferring. Thus it may have a trade diverting effects when Swiss parts classified in the same heading are used to manufacture parts that remain classified in the same heading.

HS903289 Automatic regulating or controlling instruments and apparatus, nes

The US–Singapore PSRO is the most lenient rule allowing the CTSH. In this case this means that assemble of articles of parts of subheading 903290 into complete article of 903289 is an origin conferring operation. All other PSROs are requiring a CTH not recognizing assembly from parts as origin conferring or a percentage requirement.

Table 15: Comparative PSROs applicable to selected headings and subheading of HS Chapter 90

Headings and subheadings	NAFTA	US-Singapore	US-Korea	EU-Switzerland	EU-South Korea
902790	.(A) A change to subheading 9027.90 from any other heading; or (B) No required change in tariff classification to subheading 9027.90, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used.	A) A change to subheading 9029.90 from any other heading, or (B) A regional value content of not less than 35 percent based on the build-up method or 45 percent based on the build-down method, whether or not there is a change in tariff classification.	A change to subheading 9027.90 from any other heading.	Manufacture in which the value of all the materials used does not exceed 40% of the ex-works price of the product	Manufacture from materials of any heading, except that of the product Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product
903180	(A) A change to subheading 9031.80 from any other heading; or (B) A change to subheading 9031.80 from subheading 9031.90, whether or not there is also a change from any other heading, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used	A change to subheading 9031.80 from any other subheading	(A) A change to subheadings 9031.10 through 9031.80 from any other heading; (B) A change to coordinate measuring machines of subheading 9031.49 from any other good, except from bases and frames for the goods of the same subheading; or (C) A change to subheadings 9031.10 through 9031.80 from any other subheading, provided that there is a regional value content of not less than: (1) 35 percent under the build-up method, or (2) 45 percent under the build-down method.	Manufacture in which the value of all the materials used does not exceed 40 % of the ex-works price of the product	Manufacture from materials of any heading, except that of the product Manufacture in which the value of all the materials used does not exceed 50 % of the ex-works price of the product
902290	A change to tariff item 9022.90.05 from any other tariff item. (A) A change to subheading 9022.90	A change to subheadings 9022.19 through 9022.90 from any other subheading, including another subhead-	(A) A change to subheadings 9022.14 through 9022.90 from any other subheading; or (B) No change in tariff classification to	Manufacture: – from materials of any heading, except that of the product, and	As above

Headings and subheadings	NAFTA	US-Singapore	US-Korea	EU-Switzerland	EU-South Korea
	from any other heading; or (B) No required change in tariff classification to subheading 9022.90, provided there is a regional value content of not less than: (1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used	ing within that group.	a good of such subheadings is required, provided that there is a regional value content of not less than: (1) 35 percent under the build-up method, or (2) 45 percent under the build-down method	– in which the value of all the materials used does not exceed 40 % of the ex-works price of the product or Manufacture in which the value of all the materials used does not exceed 30% of the ex-works price of the product	
903190	A change to subheading 9031.90 from any other heading	A) A change to subheading 9031.90 from any other heading, or (B) A regional value content of not less than 35 percent based on the build-up method or 45 percent based on the build-down method, whether or not there is a change in tariff classification	A change to subheading 9031.90 from any other heading. .	Manufacture in which the value of all the materials used does not exceed 40% of the ex-works price of the product	As above
903289	A change to subheading 9031.90 from any other heading or(B) No required change in tariff classification to subheading 9032.90, provided there is a regional value content of not less than:1) 60 percent where the transaction value method is used, or (2) 50 percent where the net cost method is used	A change to subheadings 9032.10 through 9083.89 from any other subheading, including another subheading within that group.	(A) A change to subheadings 9032.10 through 9032.89 from any other heading; or (B) A change to subheadings 9032.10 through 9032.89 from any other subheading, provided that there is a regional value content of not less than: (1) 35 percent under the build-up method, or (2) 45 percent under the build-down method	Manufacture in which the value of all the materials used does not exceed 40% of the ex-works price of the product	As above

4. NON-TARIFF MEASURES, NTMS

There are a series of considerations to be made at the beginning of this section.

The first one is that the issue of NTMs would deserve an extensive and detailed study on its own to provide reasoned and sustainable policy guidance.

The second consideration is that NTMs as rules of origin tends to be product specific, especially when trade flows and economic interests are substantial as in the case of the TTIP. Bearing the above caveats in mind this section of the study is providing preliminary replies to the questions raised in the TORs. These replies address the systemic issues that need to be considered when confronted with NTMs in such a complex and sophisticated scenario like the TTIP and how further work may be carried out taking into account previous research.

An extensive study[90] [hereinafter the study] reported that expected gains from the reduction / elimination of NTMs are highest for motor vehicles, electrical machinery, chemicals, financial services, government procurement and intellectual property rights. In this section we will focus on motor vehicles, chemicals and pharmaceuticals. These sectors are among the most important for the Swiss economy and they have been singled out on selected papers by the EU commission in setting out the initial negotiating position[91].

The study found that eliminating all actionable NTMs and regulatory divergence (in all sectors) between the two economies would boost EU GDP by 2018, by 0.7 percent per year compared to the current situation. The overall dismantling of NTMs in all sectors is economically by far the most beneficial for both the EU and US.

The EU in its initial negotiating positions papers set out an ambitious agenda for the elimination of NTMs. Such initial position is even going beyond the objective of reducing the existing barriers by aiming at establishing a horizontal chapter containing principles and procedures on consultation, transparency, impact assessment and a framework for future cooperation. The intention of the EU is to establish a "gateway" for handling sectoral regulatory issues by setting out a consultation procedure to discuss and address issues arising with respect to EU or US regulations or regulatory initiatives, at the request of either party.

This horizontal chapter should in practice avoid the possibility of creating new regulatory barriers by setting procedures to amend the sectoral annexes of TTIP or to add new ones and establish a body with regulatory competences (a regulatory cooperation council or committee).

This body would be assisted by sectoral working groups, as appropriate, which could be charged with overseeing the implementation of the regulatory provisions of the TTIP and make recommendations to the body with decision-making power under TTIP.

In all available initial EU negotiating papers on regulatory issues great attention is given to the use of multilateral instruments as the baseline for the negotiations. For instance the

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[90] This section draws form the result of the study: Non-Tariff Measures in EU-US Trade and Investment – An Economic Analysis Reference: OJ 2007/S 180-219493, *ECORYS Nederland* BV Rotterdam, 11th of December 2009. The study involved a literature is carried out by over 40 experts. The novel business survey has generated 5,500 responses from US and EU firms in 23 sectors.

[91] See http://trade.ec.europa.eu/doclib/press/index.cfm?id=943

WTO TBT and SPS agreement are taken as the baselines to create WTO –plus disciplines in the TTIP.

It is evident from the content of the EU Initial negotiating position papers that the EU intention is to foster cooperation on regulatory issues without creating an EU-US regulatory hub [*Directoire*]. This may be somewhat reassuring for Switzerland since there is no intention of cutting out third parties in this exercise of EU-US convergence on regulatory issues. However the non-participation of Switzerland to the extended cooperation, consultation and setting regulatory bodies that the TTIP may create may have adverse effects on some sectors of the Swiss economy. In the case where the new regulatory standards arising from the TTIP do not require significant adjustments for Swiss manufactures, they will have less time to adjust and comply with than their US and EU competitors that have been involved since the early days of the negotiations.

As some commentators[92] pointed out in the TTIP, there is greater potential for more discrimination against third countries resulting from measures that have the effect of reducing the market segmenting effects of differences in regulatory policies. For Switzerland it will depend on the ability of the Swiss Government to negotiate equivalence or MRA agreements with TTIP partners or the acceptance of the existent Swiss regulatory regimes by the TTIP partners. This fact will determine to what extent the Swiss firms will be able to enter the TTIP market. In the absence of such agreements or a channel to demonstrate compliance with EU or US norms, the Swiss producers may be at a disadvantage and trade diversion costs are likely to arise.

4.1. Automotives

As examined above in section 3, the automotive sector is one of the most important and largest sectors in the EU-US commercial relationship. The Study found that NTMs add approximately a significant 26 – 27 percent to the cost of trade and investment in the automotive sector.

Alignment of NTMs in automotives could increase total EU GDP by €12.0 billion ($15.6 billion) per year and total US GDP by €1.6 billion ($2.1 billion) per year, which underlines the importance and size of the automotive industry in both economies. The study argues that the EU gains come from the comparative advantage it has in the sector but growth in the EU, however, would also benefit affiliates of US firms inside the EU and the US would also benefit from lower prices for parts and components imports from the EU. The issue for Switzerland is to determine if such EU gains will be made at the expense of Swiss manufactures.

The EU initial negotiating position paper in the area of motor vehicles set ambitious goals while admitting that such goals could be achieved in stages. The first objective is the recognition of motor vehicles (and their parts and components, including tyres) manufactured in compliance with the technical requirements of one party as complying with the technical requirements of the other. The second objective is to adopt Global Technical Regulations rely-

[92] Bernard Hoekman, European University Institute, Florence,2014 Business and Transatlantic Trade Integration, December 213 available at http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2014/02/Hoekman_TTIP_CESIfo_forum_4-13-focus4-1.pdf

ing on a significant strengthening of EU-US cooperation also in the framework of UNECE 1998 Agreement.

The first objective would be achieved by identifying the areas where there could be recognition of equivalence between the EU/UNECE and FMVSS[93] and other regulations relevant for safety and the protection of the environment. The objective would be to establish a list in the TTIP agreement covering a high number of matching EU/UNECE-FMVSS and other regulations, both in the field of safety and the environment to achieve equivalence.

Swiss producers are manufacturing parts of motor vehicles using EU/UNECE norms. The point is to identify early in the TTIP negotiations if compliance with EU/UNECE norms generates an automatic equivalence recognition of Swiss parts when incorporated in EU motor vehicles or whether a separate equivalence agreement has to be entered by Switzerland with the US.

4.2. Pharmaceuticals and chemicals

The pharmaceuticals market in the EU is regulated and based on different regimes in different EU member states. The partially fragmented state of the market itself is a constraint on greater competition, as outlined by the European Commission's policy paper. For EU and US firms, cost reductions are associated with removal of restrictions on specific chemicals, labeling requirements, re-exporting licenses, US state level and EU member states safety regulations, double-certification needs.

The EU negotiating position paper presented elements for a TTIP annex on pharmaceutical products. The idea for such an annex is based on a proposal put forward by EU and US industry and builds on existing cooperation between EU and US regulators in this area. Regulatory cooperation between EU and US in the pharmaceutical area supported by existing confidentiality arrangements is very well established both at bilateral level as well as at multilateral level via ICH (International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use).

Switzerland as part of EFTA is a member[94] of the steering committee of the ICH and as such it could be involved at multilateral level in such regulatory cooperation among the US and EU.

The EU initial negotiating position paper sets out how the TTIP could reinforce existing collaborative processes on pharmaceuticals by:

- establishing bilateral commitments that would facilitate pharmaceutical products authorization processes and optimise agencies resources(notably with respect to reliance on each other's Good Manufacturing Practices [GMP] inspections results and exchange of confidential information),
- fostering additional harmonization of technical requirements in new areas or in areas where the need to improve harmonization at bilateral or international level has been identified (e.g. biosimilars, paediatrics,generics, terminology),
- reinforcing joint approaches on scientific advice and evaluation of quality by design applications).

[93] Federal Motor Vehicles Safety Standards
[94] See http://www.ich.org/about/organisation-of-ich/steering/ich-parties-and-observers/article/efta.html

It remains to be seen how such bilateral and international cooperative efforts mentioned above would involve Switzerland. As discussed in chapter 3 Tariffs in pharmaceutical products have been almost completely eliminated. NTMs and other regulatory barriers are the only remaining but highly effective barriers.

Chemicals

According to the EU initial position paper, both industry associations and governments are aware that neither full harmonization nor mutual recognition seem feasible on the basis of the existing framework legislations in the US and EU: the REACH (Regulation (EC)1907/2006) and TSCA (Toxic Substances Control Act) are too different with regard to some fundamental principles.

As a corollary to this statement, the initial negotiations position sets out a number of different areas where cooperation and consultations and cooperation could be enhanced. However, the scope of the approximation and reduction of existing NTMs appears substantially reduced when compared to other sectors such as automotive and pharmaceuticals. Thus in this area, trade diversion effects for Swiss inputs appears to be less pronounced.

4.3. The trade implication on Swiss products from a lessening on NTB on EU/US trade diversion: some preliminary conclusions

With customs tariffs not being the primary obstacle to EU exports in the US due to a general lowering of MFN tariffs and, as found in section chapter 3, MFN duty free for a substantial amount of tariff lines for the sectors covered by this study, it is clear that most of the gains in TTIP would come from a cut back of NTBs. The ambitions of the TTIP are far reaching even if, as the EU acknowledges, agreements with the United States on regulatory matters will be of a 'living nature', involving gradual progress in convergence and mutual acceptance of regulatory norms and approaches that is conditional on the operation of new cooperative mechanisms that are created as part of the TTIP[95]. Usually, TBT/SPS arrangements covered in FTA agreements are of a *WTO-plus* nature to cut costs on certification and conformity assessment procedures. The TTIP aims at much larger agenda as demonstrated by the EU initial negotiating position papers.

Swiss products that are not aligned with such harmonization efforts or from equivalence or mutual recognition agreements resulting from the TTIP on TBT/SPS, sectoral regulatory annexes in the TTIP or further advances in removal of NTMs may not benefit from such cost reductions. Given that most of Swiss standards and regulatory issues are aligned with the EU one of the central issues to be clarified is whether equivalence recognition among EU and US standards could be extended to Swiss products that are manufactured according to the EU standards or regulations. While it may be unlikely that such extension is automatic, such possibility will greatly diminish trade diversion effects.

[95]European Commission (2013), *Impact Assessment Report on the Future of EU-US Trade Relations,* SWD (2013) 68 final

A possible solution would consider regulatory policies with a supply chain approach as suggested by a commentator[96]. In a supply chain approach the removal of regulatory obstacles will look at the existing value chains to remove such obstacles without necessarily distinguish between EU, US or third countries inputs like Switzerland. According to this approach as long as one Swiss input is involved in a supply chain the effective removal of NTMs should also involve such a product.

It is likely that the trade effects from TAFTA on these issues may not be immediate as the removal of NTMs will be gradual and mostly the result of the work of Technical Committees or bodies created by the TTIP agreement to gradually remove NTMs. It is unlikely that progress will be made on the basis of harmonization. The potential loss for Switzerland will, therefore, derive from the non-participation to these committees and not being part of the part of outcome of the negotiations. Swiss products or inputs will not be eligible for cost-cutting measures emerging from equivalence or mutual recognition agreements.

[96] See Bernard Hoekman, Bernard Hoekman, European University Institute, Florence,2014 Business and Transatlantic Trade Integration, December 213 available at http://globalgovernanceprogramme.eui.eu/wp-content/uploads/2014/02/Hoekman_TTIP_CESIfo_forum4-13-focus4-1.pdfDecember 2013

5. CONCLUSIONS

Two sets of conclusions may be derived for the attention of Swiss policy makers and private sector from the analysis conducted in this study. A first set of conclusions derives from the general trends and evolutions of the US and EU rules of origin used in the context of FTAs. A second set of conclusions is product-specific deriving from the analysis carried out in chapter 3.

General conclusions

Both the US and the EU have gradually changed their rather restrictive approach in the design of RoO embraced at the beginning of the nineties with NAFTA and the Pan European model. Significant observations made in the course of this study- ranging from the progressive abandonment of the net cost method in subsequent US FTAs and the diversity of PSROs in recent EU FTAs- are revealing of the changed practices. The evolution of the US approach to PSROs towards more lenient requirements is evident, especially in the later US-Korea FTA.

The evolution of EU RoO and the reform of the EU GSP rules of origin have led to paradoxical results since it has made the PSROs under the EU-Swiss FTA obsolete. Contrary to the general belief that GSP rules of origin do not have a bearing on contractual arrangements such a FTA, it is a fact that some PSROs applicable to beneficiaries under the EU GSP are more liberal than those contained in the EU-Switzerland FTA. While it is true that the favorable cumulation provision contained in the EU-Switzerland FTA lessen considerably the stringency of the PSROs, it is quite clear that this fact calls for immediate attention for the Swiss policy makers.

Recommendation One: ***The Swiss policy makers should enter into consultations with the EU counterparts to explore an updating of the EU-FTA PSROs to ensure a GSP parity in terms of stringency requirement. Such consultations are started at the time of this writing and should continue bearing in mind the evolving nature of the EU rules of origin in FTAs.***

A second general conclusion derives the combined observation of the trade flows and tariff findings and the PSROs analysis carried out on specific heading and subheading in section 3.

It has been found that a significant part of the products covered by this study are duty- free into the US and the EU on a MFN basis. In trade policy terms this finding reduces the potential trade diverting effects of the TTIP for a considerable amount of Swiss exports to the EU and the US, especially for pharmaceutical products of HS chapter 30 and may headings of chemical products of HS chapter 29. This overall consideration, however, has to be read in conjunction with the PSROs analysis where it has been found that a number of PSROs negotiated by US and EU, especially in the automotive and precision instruments sector may have trade diverting effects. Thus Swiss trade policy makers and private sector should focus and be vigilant on those PSROs where there might be trade diverting effects.

Recommendation Two: ***Bearing in mind that the potential trade diversion effects may not be significant in some sectors, attention should focus to those specific sectors, particularly the automotive sector and precision instruments sectors, where trade diverting effects may take place for some specific products. The Swiss policy makers should launch, on the basis of the findings of this study, a firm survey to detect the sourcing policy of major firms as delimited by this study to assess at detailed product/firm level the impact of TTIP PSROs.***

This exercise based on the detailed findings study could be extremely valuable as it could be used in the negotiating scenario of other FTAS where Switzerland is or will be involved.

Specific conclusions at HS chapter level

HS Chapter 29 Chemicals - The analysis carried out in this HS chapter in section 3 of this study indicates that NAFTA inspired rules set at subheading level limiting the use of chemical compounds classified in other headings or subheadings of chapter 29 could have trade diverting effects since it is likely that a number of EU industries are using Swiss chemical products classified in HS chapter 29 as shown in the input–output Table 8.

However it appears unlikely that the TTIP will replicate a NAFTA scenario since the US PSROs of HS chapter 29 in the recent US FTAs examined are considerably more lenient when compared to NAFTA and to the EU PSROs contained in the EU-Switzerland FTA and EU-South-Korea FTA.

The EU rules of origin in the EU-Swiss and EU Korea are in general less liberal than the later US PSROs mentioned above since they require CTH and a threshold of 20% of non-originating materials classified in the same heading or a 40% limit of non-originating materials.

Given the amount of FDI of US companies in the EU it may be reasonably expected that the current trend toward lenient PSROs in HS chapter 29 will be followed in the TTIP negotiations. This trend however does not excludes some potentially restrictive rules in some headings or sub-headings of HS chapter 29 where specific lobbies may interfere to an overall easing of PSROs requirements for this chapter.

HS Chapter 30 Pharmaceuticals – This HS chapter does not appear to generate a possible trade diverting effects related to RoO requirements since these products are MFN duty free in the US tariff schedule. The only dutiable tariff lines exported in the US from the EU shows limited trade flows and minimal trade diverting scenarios related to RoO.

HS Chapter 87 Motor vehicles and parts – It is the HS chapter showing, potentially, the most significant trade diverting scenario. NAFTA general RoO provisions and PSROs for cars and parts of cars have been regularly quoted in literature as the most restrictive RoO. Yet, there has been significant movement towards more lenient PSROs in the US-Korea FTA with respect to other rules of origin contained in other US FTAs. Comparatively there has been less progress in liberalizing the EU rules of origin for HS Chapter 87. The PSROs for cars have moved from a threshold of 40% under the EU-Switzerland FTA to 45% under the EU-South Korea FTA that is not a significant liberalization when compared to the US evolution from NAFTA to US-South Korea.

In the case of parts of cars where the Swiss manufacturing is most active [as shown in the trade statistics and input-output table contained in chapter 3 above], the most liberal rules of origin are those under the US-South Korea FTA. All other PSROs in other US FTAs and the PSROs under the EU-South Korea and EU-Switzerland FTA have potential trade diverting effects. It may be considered that if the Swiss producers have been able to comply with the threshold of 40% on non-originating materials under the EU-Switzerland agreement, the EU producers of parts of cars from Swiss parts should be able to comply with the PSROs re-

quirements existing under a TTIP scenario. The determinant factor in the overall scenario is the abandonment of the tracing back approach of NAFTA described under section 2.3.4. This tracing back system has not been used in subsequent FTAs and it is unlikely that it will be used again in case of the TTIP given the US- -EU interdependence of the automotive sector such the recent case of the *Chrysler/Fiat* merge.

The Swiss most exported products of HS Chapter 87 are parts and accessories for body of cars (HS870829), steering wheels (HS870894) and other parts of cars classified in heading 870899. These are among the components that could be used in the EU to manufacture finished cars exported to the US or to manufacture other parts of cars and exported as parts to the US [Swiss parts classified in HS subheading 870899 (Others) are exported to the EU manufacturers and sub-assembled in the EU into HS subheading 870850 (drive axles) for export to the US].

The EU rules of origin as contained in the EU-South-Korea FTA appears more stringent in terms of percentage requirements as they are requiring not to exceed 45% of non-originating materials meaning a 55% local value content or in case of parts of HS heading 8708 they are requiring not exceeding a 50% on non-originating materials. However this finding has to be contrasted with the different calculations methodology used by the EU and the US in the denominator. The EC uses the ex-works price that is including profit while the US is using the net cost method excluding profit and any other cost and materials that according to US rules may not be counted as allowable cost. These differences may have trade diverting implications.

HS Chapter 90 Precision instruments - The combined analysis of trade flows and PSROs in Chapter 90 shows some potential trade diverting effects in the case where the majority of the PSROs do not allow a CTSH. Normally a CTSH allows parts of precision instruments classified in subheadings to be assembled into a finished instrument. As example, Swiss parts of HS subheading 903190 can be assembled in the EU into a finished instrument of HS subheading 903180. However, the majority of PSROs in HS Chapter 90 such cases the manufacturing or assembly operations of Swiss parts into finished products in the EU are requiring a RVC or not to exceed a 40% threshold of non-originating materials. Differently from HS Chapter 87 above, where the South Korea PSROs were more lenient than the US Singapore FTA PSROs, in this HS chapter the US-Singapore FTA PSROs show more flexibility. In the majority of cases it allows in fact a CTSH PSROs that consider assembly operation of parts into complete an origin conferring operation, this being more lenient than the corresponding US-South Korea PSROs.

Specific replies to the question raised in the TORs

On the basis of evidence emerged from the analysis carried out, the following are specific replies to the research questions contained in the ToR.

I. ***What are the advantages and limitations of modeling rules of origin in the context of TTIP?***

The various FTAs that the EU and US have entered with other countries allows a rather exhaustive comparison of the PSROs that the Swiss industry may be confronted with and provide valuable background for modeling Rules of origin in the TTIP. For instance by comparing the different sets of rules of origin contained in the recent reform of the GSP rules and EU-FTAs it has been found that the PSROs contained in the EU-Switzerland FTA are more stringent in a number of cases.

A difficulty in modeling rules of origin in the TTIP scenario derives from the impact of the cumulation. In this study it has been assumed that there is no cumulation in the TTIP with Swiss inputs given the fact that in the absence of a US- Switzerland FTA cumulation would be in violation of MFN article I of GATT 1994. A second difficulty derives from the absence of a questionnaire on sourcing policy at firm level. This difficulty is a common feature of this kind of studies. However given the relative size of the Swiss domestic industry and the focus on the specific sectors covered by this study such exercise is highly recommended as it may provide, in conjunction with the input-output analysis carried out in this study, rather definitive answers on the impact of the TTIP rules of origin. Such information gathered with a questionnaire built upon this study could be extremely useful for Swiss policy makers involved in other negotiating scenarios.

II. ***With TTIP, in which sectors will there be:***

i. A tendency of EU companies to replace Swiss inputs with US, intra-EU or third country inputs for exports of finished products to the US?

Automotive products of HS 87 chapter and precision instruments of HS chapter 90 are the products appearing the most exposed to trade diversion effects. This finding is largely dependent on the specific form of PSROs. Pharmaceuticals products of HS chapter 30 and many chemicals of Chapter 29 are not expected to suffer from trade diversion effects due to rules of origin as they are MFN duty free in the US and EU market thanks to an early understanding entered by a Group of WTO member at the end of the Uruguay Round[97].

and

ii. A tendency of US firms to replace Swiss inputs with EU, US or third country inputs for exports of finished products to the EU?

Such a tendency will be minimal given the combination of trade flows, their nature and the cost of transport in sending Swiss inputs for incorporation in US finished products and re-exported to the EU. US exports to the EU of HS chapter 30 are MFN duty free and there is no trade diversion incentive. Trade diversion effects could be theoretically imagined for some subheadings of Chapter 29 with the caveat that many tariff lines in HS Chapter 29 chemicals are MFN duty free in the EU. In HS Chapter 87 most of the US exports to the EU are com-

[97] See GATT document of L/7430 of 25 March 1994.

plete cars. However the value of exports of Swiss parts of cars to the US are rather minimal [around USD100 million] suggesting that these parts are eventually used as parts in the assembly of cars for the US market given the nature of automotive components.

III. ***Which forms of RoO in TTIP, TTIP plus or TTIP mult would most affect trade of Switzerland (trade diversion)?***

PSROs that are restrictive may take two forms: Those PSROs based on a change of tariff classification that do not allow a change of tariff subheading [CTSH] and those that are requiring not to exceed a maximum value of non-originating of 40% out of the ex-works price or 50% of the net cost method calculation. In both cases these PSROs are not conferring origin to assembly operations that could involve Swiss parts into complete articles or finished products.

IV. ***How would a cut back of NTBs [TBT/SPS] in TTIP such as harmonizing/mutual recognition of product regulations affect Switzerland?***

Swiss products and inputs that are not aligned with the regulatory measures or the equivalence efforts made in the TTIP on TBT/SPS may not benefit from entering the TTIP area or be used as an input or component. It should be explored as a matter of urgency how equivalence agreements entered by the US and EU works with respect to the third parties that are adopting the same standards or regulation of one of the parties to the FTA. The currently negotiations of EU–Canada FTAs may provide precious guidance on this matter and Swiss policy makers and private sector should watch carefully the outcome.

V. ***Which inputs would remain unaffected and which ones would benefit in the TBT/SPS area from the trade creation effect of the agreement?***

There is no intention in the TTIP to create a bilateral hub of regulatory policies limited to the EU and US. The EU initial negotiating position papers are unequivocal in this regard: the ultimate goal is to reach a multilateral outcome in removing regulatory obstacles. Yet it is recognized that this ultimate goal pass via a greater cooperation and integration efforts at EU-US bilateral level.

To the extent that multilateral disciplines exist or in the cases where the US and EU will decide to make use of existing multilateral channels it is clear that the inputs covered by these multilateral efforts will remain either unaffected or will benefit according the progress made in these multilateral fora thanks to the US and EU joint efforts. The EU Initial negotiating position papers provide two clear examples: the UNECE 1998 Agreement for motor vehicles and the ICH (International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use) for pharmaceutical products

ANNEX I - EU TO US AND CH TO EU: MOST EXPORTED DUTIABLE PRODUCTS

Table 16: CHAPTER 29 - EU=>USA (decreasing up to $ 115,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Supplier		2nd Supplier		3rd Supplier	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293499	Nucleic acids & their salts, whether/not chemically de-fined,n.e.s.; other heterocyclic compounds,n.e.s.	25	0.00	6.50	5 843 808	25.36	IRL	62.9	GBR	28.6	FRA	3.6
293399	Heterocyclic comps. with nitrogen hetero-atom(s) only (excl. of 2933.11-2933.91)	44	0.00	6.50	3 703 619	30.20	BEL	54.0	GBR	34.4	IRL	7.3
293359	Compounds with pyrimidine or piperazine ring; nucleic acids..., nes	22	0.00	6.50	2 610 385	34.27	IRL	81.5	GBR	7.7	ITA	3.4
293500	Sulphonamides	21	0.00	6.50	1 345 028	43.44	IRL	76.7	GBR	9.2	BEL	7.3
293339	Compounds containing an unfused pyridine ring in the structure, nes	18	0.00	6.50	1 178 457	46.84	IRL	74.4	DEU	12.9	ITA	3.6
292250	Amino-alcohol/acid-phenols; amino-compounds with oxygen function, nes	19	0.00	6.50	932 569	50.15	IRL	52.3	GBR	43.1	DEU	2.5
293410	Compounds containing an unfused thiazole ring in the structure	7	0.00	6.50	931 001	50.41	IRL	77.4	NLD	10.2	DEU	9.4
292219	Amino-alcohols, their ethers and esters with only 1 oxy-gen function, nes	11	0.00	6.50	560 623	59.67	IRL	87.9	BEL	3.9	DEU	3.6
293420	Compounds containing a benzothiazole ring-system, not further fused	12	0.00	6.50	379 405	65.18	BEL	95.1	DEU	3.8	MLT	0.4
293379	Lactams (excl. epsilon-caprolactam)	10	0.00	6.50	271 152	70.08	BEL	71.6	FRA	11.7	IRL	6.0

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293100	Other organo-inorganic compounds	13	0.00	6.50	242 698	71.39	DEU	57.5	GBR	19.4	ITA	8.9
293319	Compounds containing an unfused pyrazole ring in the structure, nes	18	0.00	6.50	238 924	71.78	DEU	94.2	FRA	4.2	BEL	1.1
293349	Heterocyclic comps. containing in the structure a quino-line/isoquinoline ring-system (whether/not hydrogenat-ed), not further fused, other than levorphanol (INN) & its salts	13	0.00	6.50	229 758	72.54	IRL	90.3	GBR	2.1	NLD	2.0
293090	Other organo-sulphur compounds, nes	14	0.00	6.50	167 466	77.04	DEU	32.6	FRA	28.6	ITA	8.7
292429	Cyclic amides (incl. carbamates) and derivatives; salts thereof, nes	28	0.00	6.50	157 004	78.06	PRT	51.3	DEU	24.1	ITA	11.8
293229	Lactones, nes	10	0.00	6.50	129 805	80.20	DEU	33.4	FRA	21.8	IRL	11.3
293299	Heterocyclic compounds with oxygen hetero-atom(s) only, nes	13	0.00	6.50	120 069	81.08	ITA	32.1	FRA	28.8	IRL	27.2
292249	Amino-acids and their esters, not >1 oxygen function; salts thereof, nes	14	0.00	6.50	116 715	81.53	FRA	39.5	DEU	34.1	ITA	9.3
292690	Nitrile-function compounds, nes	19	0.00	6.50	115 141	81.63	GBR	49.9	NLD	20.8	DEU	16.3

Table 17: CHAPTER 29 – CH=>EU (up to $30,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293399	Heterocyclic comps. with nitrogen hetero-atom(s) only (excl. of 2933.11-2933.91)	24	0,00	6,50	2 537 705	1,90	ITA	39,9	ESP	39,1	DEU	7,2
292429	Cyclic amides (incl. carbamates) and derivatives; salts thereof, nes	20	0,00	6,50	1 947 583	1,46	DEU	54,5	ITA	23,6	ESP	14,7
293359	Compounds with pyrimidine or piperazine ring; nucleic acids..., nes	10	0,00	6,50	680 162	0,51	DEU	35,2	IRL	32,5	GBR	9,8
293499	Nucleic acids & their salts, whether/not chemically defined, n.e.s.; other heterocyclic compounds,n.e.s.	24	0,00	6,50	400 882	0,30	FRA	24,6	DEU	22,8	IRL	15,9
292249	Amino-acids and their esters, not >1 oxygen function; salts thereof, nes	7	0,00	6,50	259 844	0,19	DEU	50,4	ITA	28,5	FRA	10,8
292800	Organic derivatives of hydrazine or of hydroxyiamine	8	0,00	6,50	249 755	0,19	DEU	62,3	ITA	24,0	FRA	10,7
293339	Compounds containing an unfused pyridine ring in the structure, nes	18	0,00	6,50	198 966	0,15	DEU	58,9	ITA	12,5	FRA	8,1
292690	Nitrile-function compounds, nes	17	6,00	6,50	194 518	0,15	DEU	80,7	GBR	10,6	NLD	4,4
293500	Sulphonamides	21	0,00	6,50	175 295	0,13	GBR	34,3	BEL	19,3	DEU	16,2
293229	Lactones, nes	16	0,00	6,50	155 289	0,12	GBR	57,7	FRA	18,1	ITA	15,6
292250	Amino-alcohol/acid-phenols; amino-compounds with oxygen function, nes	4	6,50	6,50	124 852	0,09	ITA	36,6	DEU	33,0	IRL	15,0
293333	Alfentanil (INN), anileridine (INN), bezitramide (INN), bromazepam (INN), difenoxin (INN), diphenoxylate (INN), dipipanone (INN), fentanyl (INN), ketobemidone (INN), methylphenidate (INN), pentazocine	1	6,50	6,50	111 409	0,08	ITA	84,1	ESP	10,1	FRA	3,9

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293379	Lactams (excl. epsilon-caprolactam)	6	6,50	6,50	109 233	0,08	DEU	35,6	BEL	24,9	GBR	20,7
293349	Heterocyclic comps. containing in the structure a quinoline/isoquinoline ring-system (whether/not hydrogenated), not further fused, other than levorphanol (INN) & its salts	10	0,00	6,50	101 181	0,08	ESP	85,2	BEL	6,5	IRL	3,2
291829	Carboxylic acids with phenol function, without oxygen function... nes	4	6,50	6,50	83 121	0,06	DEU	33,8	FRA	18,4	ITA	18,3
290719	Other monophenols, nes	4	2,10	5,50	81 645	0,06	DEU	53,4	FRA	15,6	GBR	10,5
292149	Aromatic monoamines and their derivatives, nes; salts thereof	6	6,50	6,50	73 814	0,06	GBR	54,2	DEU	12,9	FRA	7,3
291590	Saturated acyclic monocarboxylic acids and their... derivatives, nes	4	5,50	5,50	60 082	0,04	DEU	39,9	NLD	14,5	PRT	10,6
293090	Other organo-sulphur compounds, nes	34	0,00	6,50	57 720	0,04	GBR	28,4	FRA	25,3	DEU	21,8
293299	Heterocyclic compounds with oxygen hetero-atom(s) only, nes	8	6,50	6,50	55 019	0,04	IRL	34,1	DEU	28,0	FRA	12,7
293410	Compounds containing an unfused thiazole ring in the structure	6	6,50	6,50	54 329	0,04	AUT	74,4	DEU	21,4	POL	2,3
291899	Carboxylic acids with additional oxygen function & their anhydrides/halides /peroxides/peroxyacids; their halogenated /sulphonated/nitrated/nitrosated derivatives(excl. 2918.11-2918.91)	9	0,00	6,50	53 899	0,04	GBR	35,1	FRA	29,4	ESP	21,3
292419	Acyclic amides (including acyclic carbamates, excl. of 2924.11& 2924.12)&their derivatives; salts thereof	7	6,50	6,50	46 148	0,03	DEU	32,6	IRL	23,0	ITA	11,0
291830	Carboxylic acids with aldehyde, ketone but without oxygen function, etc	5	6,50	6,50	39 492	0,03	DEU	52,6	FRA	27,7	ESP	5,6

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
291429	Cyclanic, cyclenic or cycloterpenic ketones without oxygen function, nes	3	5,50	5,50	39 035	0,03	FRA	34,8	DEU	30,7	GBR	15,0
293329	Compounds containing an unfused imidazole ring in the structure, nes	4	0,00	6,50	39 029	0,03	DEU	83,2	BEL	4,0	ITA	2,9
293391	Alprazolam (INN), camazepam (INN), chlordiazepoxide (INN), clonazepam (INN), clorazepate, delorazepam (INN), diazepam (INN), estazolam (INN), ethyl loflazepate (INN), fludiazepam (INN), flunitrazepam	2	0,00	6,50	34 373	0,03	ESP	40,2	ITA	32,5	FRA	17,8
292390	Quaternary ammonium salts and hydroxides, nes	7	6,50	6,50	30 851	0,02	CZE	47,6	DEU	31,3	FRA	11,0

Table 18: CHAPTER 30 – EU=>USA (decreasing up to $50,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
300691	Appliances identifiable for ostomy use	1	4,20	4,20	122 190	86,46	EU2	45,8	GBR	38,9	DEU	8,4

Table 19: CHAPTER 30 – CH=>EU (up to $30,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
30	-	-	-	-	-	-	-	-	-	-	-	-

Table 20: CHAPTER 87 - EU=>USA (decreasing up to $80,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870324	Automobiles with reciprocating piston engine displacing > 3000 cc	2	0.00	2.50	13 525 133	13.71	DEU	66.0	GBR	22.6	ITA	5.3
870323	Automobiles with reciprocating piston engine displacing 1500 cc to 3000 cc	2	0.00	2.50	12 829 461	17.21	DEU	76.5	BEL	7.6	GBR	6.8
870899	Motor vehicle parts nes	17	0.00	2.50	2 149 560	37.36	DEU	28.1	ITA	23.5	GBR	16.0
870840	Transmissions for motor vehicles	9	0.00	2.50	1 767 447	39.40	DEU	69.0	FRA	17.5	BEL	4.8
870829	Parts and accessories of bodies nes for motor vehicles	7	0.00	2.50	880 976	51.88	DEU	73.0	SWE	6.4	ITA	3.9
870850	Drive axles with differential for motor vehicles	24	0.00	2.50	867 172	52.12	DEU	52.1	ITA	12.4	BEL	11.8

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Supplier		2nd Supplier		3rd Supplier	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870830	Brakes & servo-brakes; parts thereof, of the motor vehicles of headings 87.01 to 87.05.	3	0.00	2.50	677 702	57.16	DEU	64.9	ITA	14.4	CZE	6.2
870333	Automobiles with diesel engine displacing more than 2500 cc	2	0.00	2.50	658 580	57.52	SVK	52.0	DEU	47.3	GBR	0.4
870332	Automobiles with diesel engine displacing more than 1500 cc to 2500 cc	2	0.00	2.50	541 762	60.12	DEU	98.9	ITA	0.4	GBR	0.4
870894	Steering wheels, steering columns and steering boxes for motor vehicles	8	0.00	2.50	438 209	63.62	DEU	77.6	FRA	9.0	BEL	4.9
870790	Bodies for tractors, buses, trucks and special purpose vehicles	3	0.00	4.00	297 678	68.92	DEU	88.9	ITA	3.4	AUT	2.3
870880	Shock absorbers for motor vehicles	11	0.00	2.50	260 716	70.44	DEU	71.3	ESP	7.8	NLD	4.4
870210	Diesel powered buses with a seating capacity of > nine persons	4	0.00	2.00	247 242	70.92	DEU	49.4	BEL	49.3	ITA	0.7
871150	Motorcycles with reciprocating piston engine displacing more than 800 cc	1	2.40	2.40	244 933	71.19	DEU	52.5	ITA	32.3	GBR	8.6
870870	Wheels including parts and accessories for motor vehicles	8	0.00	2.50	179 389	76.20	DEU	56.8	HUN	16.2	ITA	13.9
870810	Bumpers and parts for motor vehicles	4	0.00	2.50	167 424	77.09	DEU	71.9	GBR	17.6	SWE	7.4
870421	Diesel powered trucks with a GVW not exceeding five tonnes	2	0.00	25.00	153 576	78.40	DEU	97.3	GBR	1.4	FRA	0.5
870891	Radiators for motor vehicles	8	0.00	2.50	125 894	80.51	DEU	42.2	GBR	19.8	ROM	6.0

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870892	Mufflers and exhaust pipes for motor vehicles	8	0.00	2.50	118 455	81.24	DEU	74.7	GBR	5.3	ITA	4.9
870390	Automobiles nes including gas turbine powered	2	0.00	2.50	93 750	83.93	FIN	61.7	FRA	20.9	GBR	11.5
870895	Safety airbags with inflater system; parts thereof for the motor vehicles of 87.01-87.05	6	0.00	2.50	84 936	85.00	DEU	85.4	POL	7.2	SWE	2.3
870893	Clutches and parts for motor vehicles	6	0.00	2.50	80 814	85.70	DEU	68.7	GBR	6.1	HUN	5.6

Table 21: CHAPTER 87 – CH=>EU (up to $30,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870829	Parts and accessories of bodies nes for motor vehicles	2	3,00	4,50	370 198	0,28	DEU	68,0	GBR	10,4	BEL	4,4
870894	Steering wheels, steering columns and steering boxes for motor vehicles	4	3,00	4,50	277 204	0,21	FRA	68,7	DEU	25,5	ITA	2,7
870899	Motor vehicle parts nes	4	3,00	4,50	206 673	0,15	DEU	62,1	FRA	9,1	ITA	6,8
871000	Tanks and other armoured fighting vehicles, motorised, and parts	1	1,70	1,70	178 255	0,13	DEU	65,7	BEL	18,5	ESP	11,4

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870590	Special purpose motor vehicles nes	4	3,70	3,70	93 907	0,07	DEU	31,4	FRA	20,3	ESP	10,6
871190	Motorcycles with other than a reciprocating piston engine	1	6,00	6,00	78 098	0,06	DEU	70,5	NLD	20,4	AUT	8,3
870323	Automobiles with reciprocating piston engine displacing 1500 cc to 3000 cc	3	10,00	10,00	75 430	0,06	LTU	27,8	DEU	20,9	FRA	20,0
870870	Wheels including parts and accessories for motor vehicles	6	3,00	4,50	63 249	0,05	DEU	83,4	BEL	8,4	ITA	5,4
870423	Diesel powered trucks with a GVW exceeding twenty tonnes	4	3,50	22,00	51 190	0,04	AUT	48,6	DEU	23,6	ITA	9,6
870830	Brakes & servo-brakes; parts thereof, of the motor vehicles of headings 87.01 to 87.05.	4	3,00	4,50	48 299	0,04	DEU	78,6	FRA	4,7	CZE	4,5
870840	Transmissions for motor vehicles	4	3,00	4,50	46 977	0,04	DEU	75,6	CZE	16,7	FRA	4,6
870880	Shock absorbers for motor vehicles	5	3,00	4,50	46 547	0,03	DEU	61,3	HUN	29,5	GBR	6,2
870324	Automobiles with reciprocating piston engine displacing > 3000 cc	2	10,00	10,00	44 570	0,03	DEU	42,8	FRA	16,9	GBR	9,8
870422	Diesel powered trucks with a GVW exc five tonnes but not exc twenty tonnes	3	3,50	22,00	42 008	0,03	AUT	35,5	DEU	28,3	FRA	11,6
870210	Diesel powered buses with a seating capacity of > nine persons	4	10,00	16,00	32 044	0,02	DEU	81,9	AUT	7,6	NLD	3,2

Table 22: CHAPTER 90 – EU=>USA (decreasing up to $50,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
902290	Apparatus based on the use of X-rays or other radiations, nes ; parts and accessories thereof	8	0.00	1.40	886 535	51.64	DEU	36.8	FRA	30.0	NLD	14.4
903180	Measuring or checking instruments, appliances and machines, nes	3	0.00	1.70	853 195	52.58	DEU	53.6	GBR	11.8	HUN	8.2
903289	Automatic regulating or controlling instruments and appa-ratus, nes	6	0.00	1.70	851 971	52.82	DEU	58.2	GBR	11.8	AUT	10.5
902790	Microtomes; parts & access of inst and app for physic or chem analysis,nes	8	0.00	3.50	836 353	53.27	DEU	37.0	GBR	12.9	SWE	11.1
900410	Sunglasses	1	2.00	2.00	524 645	60.84	ITA	94.9	FRA	3.1	DEU	1.0
900130	Contact lenses	1	2.00	2.00	443 028	63.50	GBR	65.3	IRL	30.3	DEU	4.1
903190	Parts and accessories for measuring or checking instruments, appliances and machines nes	7	0.00	3.50	415 230	64.32	DEU	41.5	GBR	21.8	FRA	7.6
902750	Instruments and apparatus using optical radiations (UV, visi-ble, IR), nes	3	0.00	1.20	366 789	65.58	DEU	44.7	GBR	20.9	NLD	9.1
901580	Surveying,hydrographic,oceanographic,meteorological or ge-ophysic. inst nes	3	0.00	2.80	362 975	65.68	GBR	42.5	FRA	23.1	DEU	21.2
902710	Gas or smoke analysis apparatus	3	1.70	3.50	320 255	67.33	DEU	58.8	GBR	29.8	FRA	3.4
901320	Lasers, other than laser diodes	1	3.10	3.10	318 154	67.59	DEU	45.1	GBR	42.4	NLD	2.8

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901420	Instruments&appl for aeronautical or space navigation (oth than compasses)	6	0.00	3.30	299 257	68.60	GBR	30.7	DEU	30.1	FRA	26.1
902230	X-ray tubes	1	0.90	0.90	226 968	72.67	DEU	80.8	NLD	11.2	FRA	6.3
901590	Parts and accessories for use with the apparatus of heading No 90.15	1			213 734	73.32	GBR	45.9	DEU	24.7	FRA	22.0
901390	Parts and accessories of optical appliances and instruments, nes	3	0.00	16.00	211 562	73.55	GBR	49.4	DEU	41.6	SWE	2.0
903290	Parts & access for automatic regulating or controlling instru-ments & app	6	0.00	1.70	201 665	74.23	DEU	48.5	GBR	9.5	HUN	9.1
903149	Optical measuring or checking instruments and appliances, nes	4	0.00	3.50	184 185	75.70	DEU	62.5	GBR	21.6	FRA	5.0
900190	Prisms, mirrors & other optical elements of any material, un-mounted, nes	9	0.00	2.90	154 128	78.32	DEU	72.9	GBR	14.2	FRA	4.0
903090	Parts and accessories for instruments and apparatus for measuring or checking electrical quantities	10	0.00	1.70	136 711	79.66	DEU	47.9	GBR	15.0	FRA	14.7
902519	Thermometers and pyrometers, not combined with other in-struments, nes	4	0.00	1.80	134 899	79.81	DEU	28.5	SWE	27.8	EST	15.0
901210	Microscopes other than optical microscopes and diffraction apparatus	1	3.50	3.50	132 410	79.91	CZE	48.5	NLD	30.4	DEU	12.0
903220	Manostats	2	0.00	1.70	124 691	80.58	DEU	92.7	ITA	1.8	FRA	1.7
903300	Parts & access nes for machines, appliances, inst or app of Chapter 90	2	0.00	4.40	121 085	80.85	GBR	38.3	DEU	28.1	FRA	5.5

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
900311	Frames and mountings for spectacles, goggles or the like, of plastic	1	2.50	2.50	117 954	81.34	ITA	81.9	FRA	8.7	GBR	2.4

Table 23: CHAPTER 90 – CH=>EU (up to $30,000)

Product Cod (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
903180	Measuring or checking instruments, appliances and machines, nes	11	0,00	4,00	344 120	0,26	DEU	43,6	FRA	14,4	GBR	9,9
902790	Microtomes; parts & access of inst and app for physic or chem analysis,nes	3	0,00	2,50	278 276	0,21	DEU	65,3	FRA	7,2	NLD	5,2
902780	Instruments and apparatus for physical or chemical analysis, nes	7	0,00	2,50	169 560	0,13	DEU	31,1	BEL	16,7	FRA	12,2
903190	Parts and accessories for measuring or checking instruments, appliances and machines nes	5	0,00	2,80	143 661	0,11	DEU	57,6	FRA	10,8	ITA	7,8
900190	Prisms, mirrors & other optical elements of any material, unmounted, nes	10	0,00	2,90	135 925	0,10	DEU	75,8	FRA	7,9	GBR	3,7
903149	Optical measuring or checking instruments and appliances, nes	2	0,00	2,80	135 243	0,10	DEU	65,1	FRA	9,4	ITA	7,4
902290	Apparatus based on the use of X-rays or other radiations, nes ; parts and accessories thereof	2	2,10	2,10	116 599	0,09	DEU	27,4	GBR	23,1	FRA	12,9
903289	Automatic regulating or controlling instruments and apparatus, nes	5	0,00	2,80	104 819	0,08	DEU	42,0	FRA	14,6	ITA	11,7
901520	Theodolites and tacheometers	2	2,70	3,70	88 415	0,07	DEU	64,5	GBR	10,0	ITA	5,3
901320	Lasers, other than laser diodes	4	4,70	4,70	68 381	0,05	DEU	63,0	FRA	13,2	GBR	7,1
903033	Other instruments & apparatus, for measuring/checking voltage, current, resistance/power, without a recording device, other than 9030.31 & 9030.32,	6	0,00	4,20	52 708	0,04	FRA	91,2	DEU	5,8	ITA	0,6
903300	Parts & access nes for machines, appliances, inst or app of Chapter 90	1	3,70	3,70	51 441	0,04	DEU	43,3	FRA	12,1	GBR	10,6

Product Cod (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
902830	Electricity supply, production and calibrating meters	3	2,10	2,10	47 449	0,04	DEU	33,3	POL	10,5	ITA	8,6
902519	Thermometers and pyrometers, not combined with other instruments, nes	4	0,00	3,20	45 256	0,03	DEU	54,3	GBR	10,8	ITA	10,7
901600	Balances of a sensitivity of 5 cg or better with or without weights	2	3,70	3,70	42 983	0,03	DEU	25,5	FRA	17,3	GBR	12,3
901590	Parts and accessories for use with the apparatus of heading No 90.15	2	2,70	2,70	40 786	0,03	DEU	46,2	FRA	9,7	GBR	9,5
902710	Gas or smoke analysis apparatus	3	2,50	2,50	37 258	0,03	DEU	82,1	FRA	6,8	AUT	2,7
900580	Monoculars, oth optical telescopes, astronomical inst and mountings, nes	1	4,20	4,20	37 189	0,03	GBR	86,1	DEU	8,9	LUX	1,5
903290	Parts & access for automatic regulating or controlling instruments & app	2	0,00	2,80	31 306	0,02	DEU	30,0	CZE	27,5	FRA	9,9
903089	Other instruments & apparatusspecially designed for telecommunications, exclud. 9030.82/84	4	0,00	2,10	30 123	0,02	DEU	39,3	FRA	16,6	GBR	16,2

ANNEX II - EU TO US: MOST EXPORTED PRODUCTS WITH ZERO MFN DUTY IN US

Table 24: CHAPTER 29 - EU=>USA (decreasing up to $ 115,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293729	Adrenal cortical hormones and their derivatives, nes	2	0.00	0.00	337 088	66.53	SWE	88.1	ITA	5.1	FRA	4.1
290124	Buta-1,3-diene and isoprene	3	0.00	0.00	291 889	69.16	NLD	86.6	FRA	13.4	DEU	0.0
293999	Vegetable alkaloids, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives (excl. of 2939.11-2939.91)	1	0.00	0.00	288 037	69.48	DEU	93.1	ITA	2.8	GBR	1.8
293722	Halogenated derivatives of adrenal cortical hormones	1	0.00	0.00	246 649	70.99	GBR	90.3	ITA	5.5	PRT	2.1
294190	Other antibiotics, nes	3	0.00	0.00	209 899	73.73	ITA	42.8	DNK	20.7	FRA	9.4
290243	p-Xylene	1	0.00	0.00	162 714	77.67	NLD	85.3	DEU	5.5	BEL	5.2

Table 25: CHAPTER 87 - EU=>USA (decreasing up to $80,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870190	Wheeled tractors nes	2	0.00	0.00	922 102	50.66	DEU	40.8	GBR	25.1	FRA	18.9
870410	Dump trucks designed for off-highway use	2	0.00	0.00	328 555	66.89	GBR	94.4	DEU	1.8	FIN	1.6
870510	Mobile cranes	1	0.00	0.00	315 335	67.68	DEU	94.6	NLD	3.6	BEL	0.9
871419	Motorcycle parts nes	1	0.00	0.00	152 268	78.61	ITA	48.0	DEU	16.9	GBR	14.4
871420	Wheelchair parts nes	1	0.00	0.00	85 472	84.83	DNK	59.3	SWE	24.9	DEU	10.6

Table 26: CHAPTER 90 – EU=>USA (decreasing up to $50,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901890	Instruments and appliances used in medical or veterinary sciences, nes	10	0.00	0.00	2 812 817	33.55	DEU	38.6	IRL	30.3	FIN	9.6

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
902190	Orthopedic and oth appliances, worn, carried or implanted in the body,nes	2	0.00	0.00	1 803 243	38.92	IRL	78.1	DEU	6.8	DNK	4.1
901839	Needles, catheters, cannulae and the like, nes	1	0.00	0.00	1 272 327	44.87	IRL	60.5	DNK	11.4	NLD	9.7
902214	Apparatus based on the use of X-rays, for medical, surgical or veterinary uses	1	0.00	0.00	1 056 675	47.74	DEU	50.0	NLD	39.1	FRA	6.8
902150	Pacemakers for stimulating heart muscles, excluding parts and accessories	1	0.00	0.00	996 941	48.58	IRL	87.6	DEU	7.8	NLD	3.9
902131	Artificial joints	1	0.00	0.00	903 412	51.40	BEL	65.7	IRL	12.7	GBR	8.3
901819	Electro-diagnostic apparatus, nes	4	0.00	0.00	855 555	52.35	DEU	46.2	IRL	15.2	NLD	15.1
901813	Magnetic resonance imaging apparatus	1	0.00	0.00	663 630	57.34	DEU	65.4	NLD	26.3	FRA	3.8
902110	Orthopaedic/fracture appliances	1	0.00	0.00	530 792	60.56	DEU	49.0	FRA	39.5	GBR	2.8
902780	Instruments and apparatus for physical or chemical analysis, nes	3	0.00	0.00	521 658	60.99	DEU	45.7	GBR	23.9	FRA	8.3
902620	Instruments and apparatus for measuring or checking pressure	2	0.00	0.00	453 898	63.26	DEU	47.1	GBR	42.5	FRA	4.2
901849	Instruments and appliances, used in dental sciences, nes	2	0.00	0.00	333 091	66.62	DEU	67.4	SWE	10.5	AUT	6.5
902140	Hearing aids, excluding parts and accessories	1	0.00	0.00	320 099	67.42	DNK	85.6	SWE	10.0	DEU	2.7
902730	Spectrometers,spectrophotometers and spectrographs us-	2	0.00	0.00	289 413	69.24	DEU	37.9	GBR	28.3	IRL	18.4

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
	ing optical radiation											
902139	Artificial parts of the body other than teeth, dental fittings & joints	1	0.00	0.00	249 473	70.78	DEU	46.6	NLD	19.2	GBR	16.5
902610	Instruments and apparatus for measure/checking the flow or level of liquid	3	0.00	0.00	223 523	72.85	DEU	43.8	GBR	25.5	FRA	8.3
903040	Instruments and apparatus, specially designed for tele-communications nes	1	0.00	0.00	214 610	73.26	DEU	46.3	GBR	38.9	FRA	3.4
901590	Parts and accessories for use with the apparatus of heading No 90.15	1			213 734	73.32	GBR	45.9	DEU	24.7	FRA	22.0
902212	Computed tomography apparatus	1	0.00	0.00	211 506	73.61	DEU	85.5	GBR	5.8	FRA	4.9
901920	Oxygen therapy, artificial respiration or oth therapeutic respiration app	1	0.00	0.00	185 409	75.50	IRL	43.0	DEU	39.5	SWE	4.5
901490	Parts & access for direction finding compasses & other nav-igational inst	4	0.00	0.00	177 556	76.34	FRA	52.3	GBR	24.8	ITA	11.7
900319	Frames and mountings for spectacles,goggles or the like,of oth materials	1	0.00	0.00	169 518	76.77	ITA	63.2	AUT	15.9	FRA	7.8
902219	Apparatus based on the use of X-rays, for uses other than medical, surgical, dental or veterinary	1	0.00	0.00	163 665	77.45	DEU	42.1	GBR	37.7	NLD	9.3
902680	Instruments & apparatus for measure/checking variables of liq or gases,nes	3	0.00	0.00	160 014	77.89	DEU	42.7	GBR	25.0	NLD	9.1
902690	Parts of inst and app for measure/checking variables of liq or gases,nes	3	0.00	0.00	159 276	77.93	DEU	38.7	GBR	16.2	SWE	16.2

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)	Principal EU Suppliers (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Supplier		2nd Supplier		3rd Supplier	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901831	Syringes, with or without needles	1	0.00	0.00	155 852	78.15	IRL	41.4	DEU	21.4	NLD	16.6
901850	Ophthalmic instruments and appliances, nes	1	0.00	0.00	153 850	78.36	DEU	70.2	GBR	13.4	ITA	7.4
901812	Ultrasonic scanning apparatus	1	0.00	0.00	140 181	79.28	AUT	26.5	DEU	18.7	NLD	16.9

ANNEX III - CH TO US AND US TO EU: MOST EXPORTED DUTIABLE PRODUCTS

Table 27: CHAPTER 29 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
293399	Heterocyclic comps. with nitrogen hetero-atom(s) only (excl. of 2933.11-2933.91)	24	0,00	6,50	390 078	22,63
293499	Nucleic acids&their salts, whether/not chemically defined,n.e.s.; other heterocyclic compounds,n.e.s.	24	0,00	6,50	326 589	41,58
292429	Cyclic amides (incl. carbamates) and derivatives; salts thereof, nes	20	0,00	6,50	286 083	58,17
292419	Acyclic amides (including acyclic carbamates, excl. of 2924.11& 2924.12)&their derivatives; salts thereof	7	6,50	6,50	92 177	63,52
293090	Other organo-sulphur compounds, nes	34	0,00	6,50	69 289	67,54
292800	Organic derivatives of hydrazine or of hydroxyiamine	8	0,00	6,50	53 589	70,65
293229	Lactones, nes	16	0,00	6,50	39 527	75,49
293339	Compounds containing an unfused pyridine ring in the structure, nes	18	0,00	6,50	31 526	77,32
293500	Sulphonamides	21	0,00	6,50	28 802	78,99
293359	Compounds with pyrimidine or piperazine ring; nucleic acids..., nes	10	0,00	6,50	28 237	80,63
291429	Cyclanic, cyclenic or cycloterpenic ketones without oxygen function, nes	3	5,50	5,50	26 884	82,19

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
293379	Lactams (excl. epsilon-caprolactam)	6	6,50	6,50	25 033	83,64
292249	Amino-acids and their esters, not >1 oxygen function; salts thereof, nes	7	0,00	6,50	24 480	85,06
293299	Heterocyclic compounds with oxygen hetero-atom(s) only, nes	8	6,50	6,50	19 503	86,19
291899	Carboxylic acids with additional oxygen function&their anhydrides/halides/peroxides/peroxyacids;their halogenated/sulphonated/nitrated/nitrosated derivatives(excl. 2918.11-2918.91)	9	0,00	6,50	15 732	87,10
293219	Compounds containing an unfused furan ring in the structure, nes	7	6,50	6,50	15 408	88,00
293369	Compounds containing an unfused triazine ring in the structure	9	0,00	6,50	13 463	88,78
293349	Heterocyclic comps. containing in the structure a quinoline/isoquinoline ring-system (whether/not hydrogenated), not further fused, other than levorphanol (INN) & its salts	10	0,00	6,50	12 258	89,49
292250	Amino-alcohol/acid-phenols; amino-compounds with oxygen function, nes	4	6,50	6,50	12 071	90,19
290719	Other monophenols, nes	4	2,10	5,50	10 702	90,81
291423	Ionones and methylionones	1	5,50	5,50	9 436	91,36
291229	Other cyclic aldehydes, without oxygen function, nes	2	5,50	5,50	7 485	92,32
292159	Aromatic polyamines and their derivatives, nes; salts thereof	6	0,00	6,50	7 009	93,14
292690	Nitrile-function compounds, nes	17	6,00	6,50	6 882	93,54
290619	Cyclanic, cyclenic or cycloterpenic alcohols and derivatives, nes	3	5,50	5,50	6 386	93,91

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
291539	Other esters of acetic acids, nes	5	5,50	5,50	5 252	94,22
291590	Saturated acyclic monocarboxylic acids and their... derivatives, nes	4	5,50	5,50	4 654	94,49
293319	Compounds containing an unfused pyrazole ring in the structure, nes	7	0,00	6,50	4 422	94,74
291219	Other acyclic aldehydes, without oxygen function, nes	2	5,50	5,50	4 194	94,98
293890	Glycosides and their salts, ethers, esters and other derivatives, nes	5	5,70	6,50	3 672	95,43
292219	Amino-alcohols, their ethers and esters with only 1 oxygen function, nes	10	6,50	6,50	3 464	95,63
290522	Acyclic terpene alcohols	2	5,50	5,50	3 459	95,83
291550	Propionic acid, its salts and esters	1	4,20	4,20	3 283	96,22
290529	Unsaturated monohydric alcohols, nes	5	5,50	5,50	3 048	96,39

Table 28: CHAPTER 29 – USA=>EU (decreasing up to $30,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293339	Compounds containing an unfused pyridine ring in the structure, nes	18	0,00	6,50	1 024 062	7,85	BEL	80,5	FRA	13,4	ESP	2,0
293499	Nucleic acids&their salts, whether/not chemically defined,n.e.s.; other heterocyclic compounds,n.e.s.	24	0,00	6,50	951 539	7,29	ESP	23,2	DEU	21,8	BEL	21,0
293359	Compounds with pyrimidine or piperazine ring; nucleic acids..., nes	10	0,00	6,50	573 807	4,40	NLD	50,2	ITA	42,3	GBR	2,7
293500	Sulphonamides	21	0,00	6,50	367 496	2,82	GBR	41,6	FRA	38,1	BEL	9,5
293100	Other organo-inorganic compounds	20	6,50	6,50	358 272	2,74	BEL	68,3	NLD	12,9	DEU	9,3
292149	Aromatic monoamines and their derivatives, nes; salts thereof	6	6,50	6,50	273 696	2,10	BEL	99,9	FRA	0,0	NLD	0,0
292241	Lysine and its esters; salts thereof	1	6,30	6,30	269 886	2,07	NLD	78,5	ESP	13,1	BEL	3,5
293090	Other organo-sulphur compounds, nes	34	0,00	6,50	237 932	1,82	BEL	58,4	NLD	9,9	ITA	8,9
290919	Other acyclic ethers and their halogenated... derivatives, nes	6	5,50	5,50	226 328	1,73	ESP	64,6	FRA	25,7	BEL	7,6
291521	Acetic acid	2	5,50	5,50	209 164	1,60	BEL	92,1	ESP	5,8	ITA	2,0
290339	Fluorinated/brominated/iodinated derivatives of acyclic hydrocarbons (excl. of 2903.31)	10	0,00	5,50	205 377	1,57	NLD	59,5	GBR	20,9	BEL	9,0
293399	Heterocyclic comps. with nitrogen hetero-atom(s) only (excl. of 2933.11-2933.91)	24	0,00	6,50	197 881	1,52	BEL	37,9	DEU	28,9	NLD	20,3

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
290711	Phenol (hydroxybenzene) and its salts	1	3,00	3,00	172 903	1,32	NLD	52,7	BEL	47,1	ITA	0,1
292429	Cyclic amides (incl. carbamates) and derivatives; salts thereof, nes	20	0,00	6,50	164 493	1,26	GBR	38,0	BEL	27,5	IRL	17,2
291532	Vinyl acetate	1	5,50	5,50	139 910	1,07	BEL	84,2	ITA	11,8	ESP	2,3
293229	Lactones, nes	16	0,00	6,50	134 631	1,03	ITA	36,4	BEL	30,5	IRL	11,4
292151	Phenylenediamine, diaminotoluenes, etc; salts thereof	8	0,00	6,50	121 484	0,93	POL	59,6	BEL	18,3	ESP	17,3
291560	Butyric acids, valeric acids, their salts and esters	3	0,00	5,50	109 544	0,84	NLD	61,9	BEL	33,0	ESP	3,8
292219	Amino-alcohols, their ethers and esters with only 1 oxygen function, nes	10	6,50	6,50	98 039	0,75	BEL	24,7	FRA	22,5	GBR	17,7
290512	Propan-1-ol (propyl alcohol) and propan-2-ol (isopropyl alcohol)	1	5,50	5,50	94 180	0,72	BEL	81,4	ESP	14,6	NLD	2,0
292910	Isocyanates	6	6,50	6,50	91 422	0,70	BEL	78,4	NLD	12,3	DEU	8,2
292250	Amino-alcohol/acid-phenols; amino-compounds with oxygen function, nes	4	6,50	6,50	87 328	0,67	GBR	62,4	NLD	12,1	BEL	11,2
292419	Acyclic amides (including acyclic carbamates, excl. of 2924.11& 2924.12)&their derivatives; salts thereof	7	6,50	6,50	72 788	0,56	FRA	38,9	DEU	23,4	GBR	18,8
291590	Saturated acyclic monocarboxylic acids and their... derivatives, nes	4	5,50	5,50	72 481	0,56	BEL	46,9	DEU	18,1	FIN	14,1
291470	Halogenated, sulphonated, nitrated or nitrosated derivatives	5	5,50	5,50	71 017	0,54	BEL	63,6	NLD	35,9	ITA	0,2

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
290531	Ethylene glycol (ethanediol)	1	5,50	5,50	69 141	0,53	DEU	59,9	BEL	28,9	ESP	5,1
291712	Adipic acid, its salts and esters	3	6,50	6,50	64 863	0,50	DEU	72,7	BEL	8,9	ITA	6,7
291020	Methyloxirane (propylene oxide)	1	5,50	5,50	64 230	0,49	NLD	76,0	BEL	24,0	DEU	0,0
290539	Other diols, nes	4	0,00	5,50	62 248	0,48	DEU	33,0	NLD	30,6	BEL	19,3
291739	Aromatic polycarboxylic acids, etc, their... derivatives, nes	6	0,00	6,50	60 099	0,46	NLD	44,7	BEL	34,6	ITA	6,6
293299	Heterocyclic compounds with oxygen hetero-atom(s) only, nes	8	6,50	6,50	59 479	0,46	BEL	74,7	AUT	12,4	GBR	6,2
292800	Organic derivatives of hydrazine or of hydroxyiamine	8	0,00	6,50	58 819	0,45	ITA	67,1	GBR	6,5	NLD	6,2
291614	Esters of methacrylic acid	2	6,50	6,50	58 225	0,45	BEL	74,6	NLD	15,0	DEU	5,1
292390	Quaternary ammonium salts and hydroxides, nes	7	6,50	6,50	57 102	0,44	DEU	22,7	BEL	18,4	FRA	13,4
293430	Compounds containing a phenothiazine ring-system, not further fused	2	0,00	6,50	56 397	0,43	FRA	87,9	NLD	6,2	ITA	3,5
290949	Other ether-alcohols and their halogenated, sulphonat-ed, nitrated or nitrosated derivatives	2	0,00	5,50	55 300	0,42	BEL	89,5	GBR	4,8	DEU	2,6
290513	Butan-1-ol (n-butyl alcohol)	1	5,50	5,50	54 519	0,42	BEL	95,5	DEU	4,4	GBR	0,1
293379	Lactams (excl. epsilon-caprolactam)	6	6,50	6,50	54 385	0,42	BEL	90,5	DEU	6,7	FRA	1,4

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
290613	Sterols and inositols	2	0,00	5,50	52 796	0,40	DEU	54,1	FIN	16,1	ESP	15,6
293369	Compounds containing an unfused triazine ring in the structure	9	0,00	6,50	50 960	0,39	NLD	45,2	DEU	15,0	BEL	14,5
290943	Monobutyl ethers of ethylene glycol or of diethylene glycol	1	5,50	5,50	50 703	0,39	BEL	68,6	NLD	21,2	ESP	8,7
292249	Amino-acids and their esters, not >1 oxygen function; salts thereof, nes	7	0,00	6,50	49 873	0,38	NLD	44,7	BEL	25,8	GBR	8,3
291899	Carboxylic acids with additional oxygen function&their anhydrides/halides/peroxides/peroxyacids;their halogenated/sulphonated/nitrated/nitrosated derivatives(excl. 2918.11-2918.91)	9	0,00	6,50	46 061	0,35	FRA	41,4	NLD	36,2	BEL	7,7
291539	Other esters of acetic acids, nes	5	5,50	5,50	45 644	0,35	BEL	60,2	NLD	13,9	GBR	10,4
291612	Esters of acrylic acid	5	6,50	6,50	45 626	0,35	BEL	80,5	NLD	6,9	FRA	5,3
291550	Propionic acid, its salts and esters	1	4,20	4,20	45 462	0,35	NLD	43,7	BEL	36,5	ESP	9,7
292211	Monoethanolamine and its salts	2	6,50	6,50	44 253	0,34	BEL	73,6	GBR	17,9	DEU	6,7
292122	Hexamethylenediamine and its salts	2	6,50	6,50	43 799	0,34	NLD	96,0	BEL	2,6	DEU	1,4
290359	Halogenated derivatives of cyclanic... cycloterpenic hydrocarbons, nes	4	0,00	5,50	43 129	0,33	BEL	86,0	ITA	6,3	DEU	4,5
291719	Acyclic polycarboxylic acids, etc, their... derivatives, nes	8	6,30	6,50	42 721	0,33	BEL	51,5	NLD	18,2	SWE	14,4
292690	Nitrile-function compounds, nes	17	6,00	6,50	42 059	0,32	NLD	26,8	GBR	22,7	BEL	18,8

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
292213	Triethanolamine and its salts	2	6,50	6,50	41 330	0,32	BEL	52,1	ESP	29,0	GBR	18,0
291639	Aromatic monocarboxylic acids, etc, their... derivatives, nes	8	6,50	6,50	41 069	0,31	BEL	78,2	DEU	9,7	ITA	6,6
292610	Acrylonitrile	1	6,50	6,50	40 621	0,31	NLD	45,6	ESP	16,7	PRT	16,2
293319	Compounds containing an unfused pyrazole ring in the structure, nes	7	0,00	6,50	39 773	0,30	FRA	94,9	DEU	2,6	BEL	1,6
290930	Aromatic ethers and their halogenated, sulphonated, ni-trated or nitrosated derivatives	9	0,00	5,50	38 050	0,29	NLD	63,1	GBR	19,0	BEL	10,5
291524	Acetic anhydride	1	5,50	5,50	34 383	0,26	NLD	94,3	BEL	5,7		.
294200	Other organic compounds, nes	1	6,50	6,50	32 285	0,25	DEU	25,4	BEL	20,3	GBR	20,1
290532	Propylene glycol (propane-1,2-diol)	1	5,50	5,50	31 964	0,24	BEL	52,5	NLD	22,9	ESP	19,5
292320	Lecithins and other phosphoaminolipids	1	5,70	5,70	30 807	0,24	NLD	36,6	DEU	22,6	ITA	17,1
291219	Other acyclic aldehydes, without oxygen function, nes	2	5,50	5,50	30 764	0,24	NLD	72,0	BEL	13,7	FRA	5,8
291419	Other acyclic ketones, without oxygen function, nes	5	0,00	5,50	30 028	0,23	NLD	68,4	BEL	27,2	DEU	2,9

Table 29: CHAPTER 30 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
-	-	-	-	-	-	-

Table 30: CHAPTER 30 – USA=>EU (up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 31: CHAPTER 87 – CHE=>USA (decreasing up to $1,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
870894	Steering wheels, steering columns and steering boxes for motor vehicles	4	3,00	4,50	75 622	58,14
870880	Shock absorbers for motor vehicles	5	3,00	4,50	18 018	72,00
870829	Parts and accessories of bodies nes for motor vehicles	2	3,00	4,50	14 057	82,80
871493	Bicycle hubs and free-wheel sprocket wheels	3	4,70	4,70	3 704	85,65
870323	Automobiles with reciprocating piston engine displacing 1500 cc to 3000 cc	3	10,00	10,00	2 836	87,83
871492	Bicycle wheel rims and spokes	2	4,70	4,70	2 454	89,72
870899	Motor vehicle parts nes	4	3,00	4,50	1 728	91,05
870324	Automobiles with reciprocating piston engine displacing > 3000 cc	2	10,00	10,00	1 668	92,33
871499	Bicycle parts nes	9	4,70	4,70	1 301	93,33
870190	Wheeled tractors nes	7	0,00	7,00	1 245	94,29
870830	Brakes & servo-brakes; parts thereof, of the motor vehicles of headings 87.01 to 87.05.	4	3,00	4,50	1 138	95,16
871200	Bicycles and other cycles (including delivery tricycles), not motorized	5	14,00	15,00	1 000	95,93

Table 32: CHAPTER 87 – USA=>EU (up to $30,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870323	Automobiles with reciprocating piston engine displacing 1500 cc to 3000 cc	3	10,00	10,00	5 612 150	42,93	DEU	64,8	GBR	18,8	LTU	6,4
870333	Automobiles with diesel engine displacing more than 2500 cc	3	10,00	10,00	1 529 145	11,70	DEU	65,2	ITA	12,4	GBR	10,0
870899	Motor vehicle parts nes	4	3,00	4,50	750 146	5,74	DEU	29,2	GBR	20,3	BEL	16,9
870324	Automobiles with reciprocating piston engine displacing > 3000 cc	2	10,00	10,00	739 277	5,65	DEU	57,5	GBR	13,6	FIN	7,5
870190	Wheeled tractors nes	7	0,00	7,00	666 397	5,10	NLD	19,7	DEU	19,0	FRA	14,5
871150	Motorcycles with reciprocating piston engine displacing more than 800 cc	1	6,00	6,00	413 318	3,16	BEL	87,4	SWE	3,0	DEU	2,0
870332	Automobiles with diesel engine displacing more than 1500 cc to 2500 cc	3	10,00	10,00	343 410	2,63	DEU	53,5	ITA	20,8	GBR	7,4
870840	Tansmissions for motor vehicles	4	3,00	4,50	307 592	2,35	DEU	33,7	GBR	27,7	NLD	13,6
870829	Parts and accessories of bodies nes for motor vehicles	2	3,00	4,50	270 504	2,07	DEU	53,1	GBR	7,6	ITA	6,0
870321	Automobiles with reciprocating piston engine displacing <= 1000 cc	2	10,00	10,00	263 475	2,02	ITA	24,0	FIN	17,0	GBR	12,1
870390	Automobiles nes including gas turbine powered	2	10,00	10,00	198 476	1,52	DEU	71,3	FIN	5,5	NLD	4,7
871000	Tanks and other armoured fighting vehicles, motorised, and parts	1	1,70	1,70	139 131	1,06	GBR	71,2	DEU	16,2	GRC	4,7

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870310	Snowmobiles, golf cars and similar vehicles	2	5,00	10,00	136 977	1,05	FIN	36,8	SWE	27,1	DEU	14,4
870830	Brakes & servo-brakes; parts thereof, of the motor vehicles of headings 87.01 to 87.05.	4	3,00	4,50	125 365	0,96	GBR	23,4	DEU	18,7	BEL	17,2
870880	Shock absorbers for motor vehicles	5	3,00	4,50	105 595	0,81	DEU	39,3	GBR	18,7	FRA	14,7
871419	Motorcycle parts nes	1	3,70	3,70	93 826	0,72	BEL	47,1	DEU	14,3	GBR	10,9
870895	Safety airbags with inflater system; parts thereof for the motor vehicles of 87.01-87.05	3	3,00	4,50	80 856	0,62	ITA	41,2	DEU	27,1	SWE	8,6
870850	Drive axles with differential for motor vehicles	5	3,00	4,50	67 644	0,52	DEU	22,7	FIN	19,4	SWE	13,3
870893	Clutches and parts for motor vehicles	2	3,00	4,50	63 047	0,48	DEU	26,9	SWE	11,9	BEL	10,5
871491	Bicycle frames and forks, and parts thereof	7	4,70	4,70	62 725	0,48	DEU	51,6	NLD	13,9	GBR	11,8
870590	Special purpose motor vehicles nes	4	3,70	3,70	61 632	0,47	GBR	29,4	DEU	22,4	DNK	7,1
870870	Wheels including parts and accessories for motor vehicles	6	3,00	4,50	56 352	0,43	DEU	49,9	ITA	16,6	GBR	7,9
870919	Work trucks not electrically powered	2	2,00	4,00	53 983	0,41	GBR	49,8	NLD	25,2	FRA	10,5
870894	Steering wheels, steering columns and steering boxes for motor vehicles	4	3,00	4,50	43 862	0,34	POL	29,4	DEU	27,0	FRA	7,7
871190	Motorcycles with other than a reciprocating piston engine	1	6,00	6,00	38 460	0,29	DEU	31,2	AUT	11,1	FIN	10,3

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870810	Bumpers and parts for motor vehicles	2	3,00	4,50	35 940	0,27	DEU	42,8	FRA	10,3	ITA	10,3
870891	Radiators for motor vehicles	4	3,00	4,50	30 584	0,23	DEU	30,7	FIN	27,7	FRA	10,1
870322	Automobiles with reciprocating piston engine displacing 1000 cc to 1500 cc	2	10,00	10,00	29 171	0,22	DEU	55,4	NLD	20,8	SWE	8,1
870600	Chassis fitted with engines for the vehicles of heading Nos 87.01 to 87.05	4	4,50	19,00	27 935	0,21	AUT	52,5	BEL	15,8	FIN	6,4
871499	Bicycle parts nes	9	4,70	4,70	26 912	0,21	GBR	26,4	NLD	25,6	DEU	16,6
870892	Mufflers and exhaust pipes for motor vehicles	4	3,00	4,50	25 185	0,19	DEU	51,4	FIN	10,1	GBR	9,5
870790	Bodies for tractors, buses, trucks and special purpose vehicles	2	4,50	4,50	23 480	0,18	BEL	39,5	FRA	25,6	DEU	15,2
871680	Wheelbarrows, hand-carts, rickshaws and other hand propelled vehicles	1	1,70	1,70	20 294	0,16	NLD	36,4	GBR	18,8	DEU	14,8
871690	Trailer and other vehicle parts nes	5	1,70	1,70	18 220	0,14	GBR	17,2	DEU	17,2	ITA	11,3
870710	Bodies for passenger carrying vehicles	2	4,50	4,50	15 619	0,12	DEU	30,8	BEL	25,6	GBR	12,0
871130	Motorcycles with reciprocating piston engine displacing > 250 cc to 500 cc	2	6,00	6,00	13 880	0,11	DEU	15,7	FIN	15,5	NLD	14,5
871610	Trailers for housing or camping	5	2,70	2,70	13 795	0,11	GBR	47,2	DEU	17,9	BEL	10,8
870990	Work truck parts	1	3,50	3,50	10 602	0,08	NLD	34,1	GBR	21,2	FRA	11,1

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
871120	Motorcycles with reciprocating piston engine displacing > 50 cc to 250 cc	4	8,00	8,00	10 505	0,08	NLD	19,8	DEU	16,1	FRA	13,9
871110	Motorcycles with reciprocating piston engine displacing 50 cc or less	1	8,00	8,00	10 357	0,08	DEU	25,0	FIN	16,5	NLD	11,5
870431	Gas powered trucks with a GVW not exceeding five tonnes	5	3,50	22,00	9 913	0,08	DEU	63,6	BEL	14,7	NLD	14,0
871200	Bicycles and other cycles (including delivery tricycles), not motorised	5	14,00	15,00	9 761	0,07	NLD	40,7	DEU	19,1	GBR	15,4
870911	Work trucks, electrically powered, for use in factories and warehouses	2	2,00	4,00	9 514	0,07	GBR	35,1	NLD	16,8	FRA	9,8
871492	Bicycle wheel rims and spokes	2	4,70	4,70	9 134	0,07	PRT	29,8	GBR	16,9	ITA	16,1
871494	Bicycle brakes, including coaster braking hubs, and parts thereof	6	4,70	4,70	8 577	0,07	NLD	47,5	DEU	23,6	GBR	20,9
871140	Motorcycles with reciprocating piston engine displacing > 500 cc to 800 cc	1	6,00	6,00	7 789	0,06	DEU	19,8	FRA	15,3	ESP	14,7
870120	Road tractors for semi-trailers (truck tractors)	2	16,00	16,00	7 332	0,06	FIN	76,4	EST	8,0	BEL	6,9
871639	Trailers nes for the transport of goods	5	2,70	2,70	6 999	0,05	BEL	30,6	DEU	16,4	GBR	15,0
870110	Pedestrian controlled tractors	1	3,00	3,00	5 827	0,04	BEL	90,4	DEU	4,6	NLD	2,6
870510	Mobile cranes	1	3,70	3,70	4 959	0,04	DEU	49,1	GBR	14,3	BEL	13,1
871411	Motorcycle saddles	1	3,70	3,70	3 965	0,03	BEL	79,7	GBR	9,4	DEU	4,3

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
871640	Trailers and semi-trailers nes	1	2,70	2,70	3 909	0,03	GBR	41,1	NLD	16,9	DEU	13,8
870490	Trucks nes	1	10,00	10,00	3 822	0,03	DEU	47,6	ESP	17,0	BEL	11,4
870530	Fire fighting vehicles	1	3,70	3,70	3 626	0,03	DEU	57,9	ESP	14,9	GRC	9,4

Table 33: CHAPTER 90 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
902290	Apparatus based on the use of X-rays or other radiations, nes ; parts and accessories thereof	2	2,10	2,10	189 731	51,96
903180	Measuring or checking instruments, appliances and machines, nes	11	0,00	4,00	86 844	63,91
902790	Microtomes; parts & access of inst and app for physic or chem analysis,nes	3	0,00	2,50	85 018	66,95
902780	Instruments and apparatus for physical or chemical analysis, nes	7	0,00	2,50	56 084	71,31
900510	Binoculars	1	4,20	4,20	32 803	79,12
900290	Lenses, prisms, mirrors and other optical elements, mounted, nes	4	0,00	6,70	30 880	81,36
903149	Optical measuring or checking instruments and appliances, nes	2	0,00	2,80	22 376	82,16
900190	Prisms, mirrors & other optical elements of any material, unmounted, nes	10	0,00	2,90	21 355	83,70
903190	Parts and accessories for measuring or checking instruments, appliances and machines nes	5	0,00	2,80	21 104	84,46
902920	Speed indicators and tachometers; stroboscopes	4	0,00	2,60	20 501	85,19
901320	Lasers, other than laser diodes	4	4,70	4,70	16 655	87,14
901520	Theodolites and tacheometers	2	2,70	3,70	14 709	89,36
902990	Parts and access of revolution counters, production counters, taximeters	2	0,00	2,20	13 347	89,83

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
903033	Other instruments & apparatus, for measuring/checking voltage, current, resistance/power, without a recording device, other than 9030.31 & 9030.32,	6	0,00	4,20	13 210	90,30
903089	Other instruments & apparatusspecially designed for telecommunications, exclud. 9030.82/84	4	0,00	2,10	12 647	90,76
903300	Parts & access nes for machines, appliances, inst or app of Chapter 90	1	3,70	3,70	12 399	91,20
901590	Parts and accessories for use with the apparatus of heading No 90.15	2	2,70	2,70	12 029	91,63
901580	Surveying,hydrographic,oceanographic,meteorological or geophysic. inst nes	7	2,70	3,70	10 190	92,41
903289	Automatic regulating or controlling instruments and apparatus, nes	5	0,00	2,80	9 721	92,76
903090	Parts and accessories for instruments and apparatus for measuring or checking electrical quanti-ties	3	0,00	2,50	8 605	93,38
902910	Revolution counters,production counters taximeters,mileometers and like	2	0,00	1,90	8 473	93,68
902710	Gas or smoke analysis apparatus	3	2,50	2,50	7 617	93,95
902230	X-ray tubes	2	2,10	2,10	7 547	94,22
900410	Sunglasses	3	2,90	2,90	7 441	94,48
900661	Photographic discharge lamp (electronic) flashlight apparatus	1	3,20	3,20	6 809	94,98
901530	Surveying levels	2	2,70	3,70	5 636	95,82
900319	Frames and mountings for spectacles,goggles or the like,of oth materials	2	2,20	2,20	5 315	96,01

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
901410	Direction finding compasses	2	0,00	2,70	5 013	96,55
900580	Monoculars, oth optical telescopes, astronomical inst and mountings, nes	1	4,20	4,20	4 972	96,73
901510	Rangefinders	4	2,70	3,70	4 517	96,89
901730	Micrometers, callipers and gauges	1	2,70	2,70	4 172	97,20
902300	Instruments, apparatus and models, designed for demonstrational purposes	3	0,00	1,40	3 977	97,34
902519	Thermometers and pyrometers, not combined with other instruments, nes	4	0,00	3,20	3 826	97,48
901420	Instruments&appl for aeronautical or space navigation (oth than compasses)	4	0,00	3,70	3 638	97,74
901390	Parts and accessories of optical appliances and instruments, nes	2	0,00	4,70	3 618	97,87
900691	Parts and accessories for photographic cameras	1	3,70	3,70	3 516	98,00
902480	Machines and appliances for testing the mechanical properties of ot matrl	3	2,10	3,20	3 253	98,12
900390	Parts for frames and mountings for spectacles, goggles or the like	1	2,20	2,20	3 177	98,34
901780	Instruments for measuring length, for use in the hand, nes	2	2,70	2,70	3 006	98,56

Table 34: CHAPTER 90 – USA=>EU (up to $30,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
902780	Instruments and apparatus for physical or chemical analysis, nes	7	0,00	2,50	611 396	2,83	DEU	36,6	BEL	13,5	ITA	11,7
902790	Microtomes; parts & access of inst and app for physic or chem analysis,nes	3	0,00	2,50	592 851	2,74	DEU	41,2	NLD	16,2	GBR	11,6
903180	Measuring or checking instruments, appliances and machines, nes	11	0,00	4,00	448 945	2,08	DEU	30,8	FRA	16,2	GBR	16,2
902290	Apparatus based on the use of X-rays or other radiations, nes ; parts and accessories thereof	2	2,10	2,10	436 347	2,02	DEU	41,9	FRA	21,3	GBR	9,7
901320	Lasers, other than laser diodes	4	4,70	4,70	404 550	1,87	NLD	52,2	DEU	25,6	GBR	8,6
903289	Automatic regulating or controlling instruments and appa-ratus, nes	5	0,00	2,80	383 577	1,77	DEU	30,1	GBR	25,5	FRA	12,6
900130	Contact lenses	1	2,90	2,90	283 904	1,31	GBR	39,8	DEU	23,4	IRL	21,6
901590	Parts and accessories for use with the apparatus of heading No 90.15	2	2,70	2,70	270 082	1,25	GBR	46,6	NLD	20,4	FRA	13,9
901580	Surveying,hydrographic,oceanographic,meteorological or ge-ophysic. inst nes	7	2,70	3,70	255 162	1,18	GBR	32,0	NLD	13,8	ESP	8,5
903190	Parts and accessories for measuring or checking instruments, appliances and machines nes	5	0,00	2,80	192 140	0,89	NLD	36,4	DEU	21,4	GBR	13,7
900190	Prisms, mirrors & other optical elements of any material, un-mounted, nes	10	0,00	2,90	158 620	0,73	DEU	44,2	GBR	21,0	FRA	12,1
903090	Parts and accessories for instruments and apparatus for measuring or checking electrical quantities	3	0,00	2,50	148 177	0,69	DEU	42,9	GBR	19,2	FRA	11,0

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901390	Parts and accessories of optical appliances and instruments, nes	2	0,00	4,70	138 024	0,64	DEU	38,1	NLD	28,6	GBR	11,2
902230	X-ray tubes	2	2,10	2,10	132 254	0,61	FRA	51,1	NLD	21,9	DEU	17,4
901380	Optical devices, appliances and instruments, nes, of this Chapter	3	0,00	4,70	128 754	0,60	DEU	55,8	GBR	14,6	FRA	8,4
903010	Instruments and apparatus for measuring or detecting ionising radiations	3	0,00	4,20	122 123	0,57	DEU	27,8	GBR	20,7	FRA	11,2
902710	Gas or smoke analysis apparatus	3	2,50	2,50	117 076	0,54	DEU	35,6	GBR	16,9	FRA	12,8
902300	Instruments, apparatus and models, designed for demonstrational purposes	3	0,00	1,40	115 616	0,53	GBR	28,6	DEU	21,4	NLD	14,8
900110	Optical fbrs,optical fbr bundles&cables,oth than those of heading 85.44	4	2,90	2,90	111 731	0,52	FRA	19,8	DEU	19,8	POL	19,4
903300	Parts & access nes for machines, appliances, inst or app of Chapter 90	1	3,70	3,70	106 757	0,49	IRL	28,5	GBR	24,7	DEU	16,5
900630	Cameras designed for special use, underwater, aerial survey, etc	1	4,20	4,20	95 203	0,44	DEU	79,4	GBR	8,3	FRA	3,8
903149	Optical measuring or checking instruments and appliances, nes	2	0,00	2,80	86 856	0,40	DEU	35,5	GBR	16,6	NLD	14,8
902480	Machines and appliances for testing the mechanical properties of ot matrl	3	2,10	3,20	73 647	0,34	DEU	36,7	GBR	18,4	FRA	8,2
902000	Breathing appliances and gas masks,exc protective masks with no mech pts	3	0,00	1,70	69 076	0,32	DEU	45,9	FRA	19,8	GBR	15,2
901490	Parts & access for direction finding compasses & other navigational inst	2	0,00	2,70	68 429	0,32	FRA	32,5	GBR	20,8	DEU	16,5

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901720	Drawing, marking-out or mathematical calculating instruments, nes	4	0,00	2,70	67 772	0,31	GBR	26,0	DEU	23,9	POL	10,6
900410	Sunglasses	3	2,90	2,90	64 878	0,30	ITA	63,2	FRA	19,9	GBR	7,7
903033	Other instruments & apparatus, for measuring/checking voltage, current, resistance/power, without a recording device, other than 9030.31 & 9030.32,	6	0,00	4,20	61 302	0,28	DEU	23,8	GBR	20,0	FRA	15,6
903089	Other instruments & apparatusspecially designed for telecommunications, exclud. 9030.82/84	4	0,00	2,10	59 792	0,28	GBR	34,7	DEU	24,9	ITA	10,4
903290	Parts & access for automatic regulating or controlling instruments & app	2	0,00	2,80	57 111	0,26	DEU	24,9	GBR	23,6	FRA	13,1
902490	Parts and accessories of mach and appl for testing mech property of matrl	1	2,10	2,10	55 978	0,26	DEU	31,3	GBR	17,2	NLD	13,4
901290	Parts and accessories for microscopes other than optical microscopes	2	0,00	3,70	49 935	0,23	NLD	43,8	DEU	33,6	FRA	11,1
901480	Navigational instruments and appliances nes	1	3,70	3,70	46 628	0,22	GBR	26,8	FRA	18,1	DEU	15,7
900290	Lenses, prisms, mirrors and other optical elements, mounted, nes	4	0,00	6,70	42 967	0,20	DEU	33,1	NLD	29,5	BEL	7,7
902519	Thermometers and pyrometers, not combined with other instruments, nes	4	0,00	3,20	42 677	0,20	DEU	29,8	GBR	24,3	FRA	17,4
903110	Machines for balancing mechanical parts, nes	1	2,80	2,80	41 475	0,19	FRA	16,0	GBR	12,7	ITA	12,5
901420	Instruments&appl for aeronautical or space navigation (oth than compasses)	4	0,00	3,70	39 820	0,18	DEU	51,6	ITA	23,8	GBR	16,8
901210	Microscopes other than optical microscopes and diffraction apparatus	2	0,00	3,70	38 875	0,18	DEU	56,5	FRA	26,9	NLD	9,0

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
903281	Hydraulic or pneumatic automatic regulating or controlling inst & app	2	0,00	2,80	35 412	0,16	GBR	23,2	DEU	16,4	NLD	10,8
900490	Spectacles, goggles and the like, corrective, protective or oth-er, nes	2	2,90	2,90	33 646	0,16	NLD	26,6	DEU	18,7	ITA	15,3

ANNEX IV - CH TO US AND US TO EU: MOST EXPORTED PRODUCTS WITH ZERO MFN DUTY

Table 35: CHAPTER 29 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
294190	Other antibiotics, nes	2	0,00	0,00	43 897	73,20
293719	Polypeptide hormones, protein hormones & glycoprotein hormones, their derivatives & structural analogues (excl. of 2937.11 & 2937.12)	1	0,00	0,00	9 194	91,89
293999	Vegetable alkaloids, natural/reproduced by synthesis, & their salts, ethers, esters & other derivatives (excl. of 2939.11-2939.91)	1	0,00	0,00	7 060	92,73
290110	Acyclic hydrocarbons, saturated	1	0,00	0,00	3 961	95,21
293919	Alkaloids of opium (excl. of 2939.11) & their derivatives; salts thereof	1	0,00	0,00	3 366	96,02

Table 36: CHAPTER 29 – USA=>EU (decreasing up to $30,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of E			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
293719	Polypeptide hormones, protein hormones & glycoprotein hormones, their derivatives & structural analogues (excl. of 2937.11 & 2937.12)	1	0,00	0,00	908 436	6,96	AUT	67,7	FRA	29,9	DEU	1,9
293712	Insulin & its salts	1	0,00	0,00	821 023	6,29	FRA	73,9	ITA	26,0	DEU	0,0
293729	Adrenal cortical hormones and their derivatives, nes	1	0,00	0,00	369 759	2,83	BEL	92,3	FRA	3,8	ITA	3,7
294190	Other antibiotics, nes	2	0,00	0,00	276 798	2,12	IRL	28,4	BEL	25,6	GBR	21,9
290129	Unsaturated acyclic hydrocarbons, nes	1	0,00	0,00	267 728	2,05	BEL	36,4	FRA	29,2	NLD	15,5
290250	Styrene	1	0,00	0,00	262 255	2,01	NLD	44,1	DEU	35,4	BEL	12,1
294150	Erythromycin and its derivatives; salts thereof	1	0,00	0,00	230 168	1,76	BEL	40,1	NLD	39,3	ITA	19,7
290220	Benzene	1	0,00	0,00	71 820	0,55	NLD	56,6	ESP	23,9	BEL	19,5
293711	Somatotropin, its derivatives & structural analogues	1	0,00	0,00	68 700	0,53	GBR	99,6	FRA	0,3	SWE	0,0
290270	Cumene	1	0,00	0,00	51 822	0,40	DEU	84,2	NLD	15,8		.
293790	Hormones, prostaglandins, thromboxanes & leukotrienes, natural/reproduced by synthesis(excl. of 2937.11-2937.50); derivatives & structural analogues thereof, including chain modified polypeptides, us	1	0,00	0,00	51 563	0,40	DEU	72,6	GBR	11,1	BEL	8,6
290219	Cyclanes, cyclenes and cycloterpenes	1	0,00	0,00	46 969	0,36	BEL	62,6	FRA	19,3	ESP	9,8

Product Code (HS)	Product Description	MFN Applied Tariffs of E			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
290123	Butene (butylene) and isomers thereof	1	0,00	0,00	39 805	0,30	ITA	48,6	FRA	40,8	BEL	10,2
293629	Other vitamins and their derivatives, unmixed, nes	1	0,00	0,00	37 179	0,28	NLD	42,0	GBR	28,4	BEL	4,4
290211	Cyclohexane	1	0,00	0,00	35 975	0,28	ESP	49,8	BEL	34,4	NLD	15,8
290290	Other cyclic hydrocarbons, nes	1	0,00	0,00	33 243	0,25	FRA	23,9	BEL	23,5	NLD	21,7

Table 37: CHAPTER 30 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
300490	Other medicaments of mixed or unmixed products, for retail sale, nes	1	0,00	0,00	4 355 913	55,12
300210	Antisera and other blood fractions	4	0,00	0,00	2 729 245	89,66
300439	Medicaments of other hormones, for retail sale, nes	1	0,00	0,00	426 608	95,06
300610	Materials for surgical sutures; laminaria ; absorbable haemostatics	3	0,00	0,00	183 172	97,38

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Re-porter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
300420	Medicaments of other antibiotics, for retail sale	1	0,00	0,00	154 567	99,33
300640	Dental cements and other dental fillings; bone reconstruction cements	1	0,00	0,00	34 445	99,77
300390	Other medicaments with >=2 constituents, not for retail sale, nes	1	0,00	0,00	9 011	99,88
300220	Vaccines for human medicine	1	0,00	0,00	3 885	99,93

Table 38: CHAPTER 30 – USA=>EU (up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Re-porter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
300490	Other medicaments of mixed or unmixed products, for retail sale, nes	1	0,00	0,00	9 467 849	49,83	NLD	20,7	GBR	20,2	ESP	14,3
300210	Antisera and other blood fractions	4	0,00	0,00	3 227 599	16,99	DEU	41,0	BEL	21,3	NLD	15,7
300220	Vaccines for human medicine	1	0,00	0,00	2 212 297	11,64	GBR	87,0	NLD	9,0	ITA	2,2
300190	Substances of human or animal origin, for prophylactic uses, nes	3	0,00	0,00	981 657	5,17	ITA	55,5	SWE	20,8	FRA	13,8

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
300390	Other medicaments with >=2 constituents, not for retail sale, nes	1	0,00	0,00	430 587	2,27	IRL	33,9	ESP	22,3	DEU	16,6
300420	Medicaments of other antibiotics, for retail sale	1	0,00	0,00	402 947	2,12	FRA	38,3	GBR	20,3	BEL	20,0
300439	Medicaments of other hormones, for retail sale, nes	1	0,00	0,00	344 879	1,82	GBR	67,1	DEU	11,4	BEL	10,9
300290	Human and animal blood; microbial cultures; toxins, etc, nes	4	0,00	0,00	327 813	1,73	ESP	38,3	IRL	21,4	DEU	11,2
300610	Materials for surgical sutures; laminaria ; absorbable haemostatics	3	0,00	0,00	249 048	1,31	BEL	75,5	LUX	6,3	DEU	5,4
300431	Medicaments of insulin, for retail sale	1	0,00	0,00	168 043	0,88	DEU	67,4	FRA	32,1	GBR	0,4
300440	Medicaments of alkaloids or derivatives thereof but not containing hormones or other products of heading No. 29.37, for retail sale	1	0,00	0,00	161 612	0,85	DEU	20,1	ITA	20,1	FRA	13,4
300230	Vaccines for veterinary medicine	1	0,00	0,00	158 264	0,83	NLD	25,8	BEL	15,0	ESP	12,1
300432	Medicaments of adrenal cortex hormones, for retail sale	1	0,00	0,00	156 731	0,82	BEL	97,9	GBR	1,1	FRA	0,7
300450	Other medicaments of vitamins or other products of 29.36 for retail sale	1	0,00	0,00	104 698	0,55	FIN	48,0	DEU	15,2	BEL	8,5
300510	Adhesive dressings..., for medical... purposes	1	0,00	0,00	92 826	0,49	DEU	47,8	ITA	13,0	GBR	10,6
300640	Dental cements and other dental fillings; bone reconstruction cements	1	0,00	0,00	92 740	0,49	DEU	69,0	FRA	6,0	ITA	5,3
300691	Appliances identifiable for ostomy use	1	0,00	0,00	79 675	0,42	NLD	49,4	IRL	21,0	DEU	8,5

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
300620	Blood-grouping reagents	1	0,00	0,00	75 060	0,40	FRA	87,5	DEU	10,0	GBR	1,1
300410	Medicaments of penicillins... or streptomycins..., for retail sale	1	0,00	0,00	75 013	0,39	ITA	73,8	IRL	7,8	GBR	7,4
300590	Wadding, gauze, etc with pharmaceutical substances for retail sale, nes	4	0,00	0,00	72 040	0,38	DEU	41,3	BEL	15,3	GBR	13,8
300120	Extracts of glands or other organs or of their secretions	2	0,00	0,00	41 574	0,22	ESP	70,0	GBR	13,1	FRA	7,7
300339	Medicaments of other hormones, not for retail sale, nes	1	0,00	0,00	23 512	0,12	IRL	58,0	GBR	38,1	BEL	2,3
300630	Opacifying preparations for X-ray examinations; diagnostic reagents...	1	0,00	0,00	15 802	0,08	ESP	41,3	DEU	23,9	IRL	9,5
300320	Medicaments of other antibiotics, not for retail sale	1	0,00	0,00	13 075	0,07	ITA	56,0	DEU	18,2	GRC	17,3
300340	Medicaments of alkaloids or derivatives thereof but not containing hormones or other products of heading No. 29.37, not for retail sale	1	0,00	0,00	9 434	0,05	DNK	75,2	SWE	16,5	GBR	7,8
300670	Gel preparations designed to be used in human/veterinary medicine as a lubricant for parts of the body for surgical operations/physical examinations/as a coupling agent between the body & medical inst	1	0,00	0,00	7 098	0,04	GBR	29,8	DEU	28,9	FRA	12,6
300331	Medicaments of insulin, not for retail sale	1	0,00	0,00	4 458	0,02	DNK	98,6	FRA	1,0	GBR	0,4

Table 39: CHAPTER 87 – CHE=>USA (decreasing up to $1,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
-	-	-	-	-	-	-

Table 40: CHAPTER 87 – USA=>EU (up to $30,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
870410	Dump trucks designed for off-highway use	2	0,00	0,00	239 095	1,83	FRA	36,4	BEL	28,4	SWE	13,1
870130	Track-laying tractors (crawlers)	1	0,00	0,00	161 513	1,24	BEL	45,9	FRA	14,8	GBR	13,5
871420	Wheelchair parts nes	1	0,00	0,00	13 130	0,10	GBR	49,4	DEU	14,3	ITA	11,2
871390	Wheelchairs, mechanically propelled	1	0,00	0,00	6 388	0,05	GBR	29,8	DEU	22,7	NLD	14,3
871310	Wheelchairs not mechanically propelled	1	0,00	0,00	3 355	0,03	GBR	26,9	FRA	17,9	NLD	15,5

Table 41: CHAPTER 90 – CHE=>USA (decreasing up to $3,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
902110	Orthopaedic/fracture appliances	2	0,00	0,00	712 817	25,43
901890	Instruments and appliances used in medical or veterinary sciences, nes	8	0,00	0,00	358 892	38,24
902190	Orthopedic and oth appliances,worn,carried or implanted in the body,nes	2	0,00	0,00	194 839	45,19
901849	Instruments and appliances, used in dental sciences, nes	2	0,00	0,00	139 316	56,93
902140	Hearing aids, excluding parts and accessories	1	0,00	0,00	108 876	60,82
902129	Dental fittings, nes	1	0,00	0,00	66 198	69,31
902690	Parts of inst and app for measure/checking variables of liq or gases,nes	2	0,00	0,00	52 721	73,19
901850	Ophthalmic instruments and appliances, nes	2	0,00	0,00	47 577	74,89
902131	Artificial joints	1	0,00	0,00	47 223	76,57
902730	Spectrometers,spectrophotometers and spectrographs using optical radiation	1	0,00	0,00	38 428	77,95
902620	Instruments and apparatus for measuring or checking pressure	6	0,00	0,00	32 066	80,26
902150	Pacemakers for stimulating heart muscles, excluding parts and accessories	1	0,00	0,00	21 872	82,94
903040	Instruments and apparatus, specially designed for telecommunications nes	2	0,00	0,00	20 329	85,91

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
901832	Tubular metal needles and needles for sutures	2	0,00	0,00	17 846	86,55
903039	Instruments and apparatus, for measuring or checking voltage, current, resistance or power, without a recording device, nes	2	0,00	0,00	16 465	87,73
901831	Syringes, with or without needles	2	0,00	0,00	15 577	88,29
902610	Instruments and apparatus for measure/checking the flow or level of liquid	8	0,00	0,00	15 272	88,83
901920	Oxygen therapy, artificial respiration or oth therapeutic respiration app	1	0,00	0,00	11 731	92,05
901819	Electro-diagnostic apparatus, nes	2	0,00	0,00	8 755	93,07
901841	Dental drill engines, whether or not combined on a single base with other dental equipment	1	0,00	0,00	7 140	94,74
902121	Artificial teeth	2	0,00	0,00	6 260	95,21
902680	Instruments & apparatus for measure/checking variables of liq or gases,nes	4	0,00	0,00	5 745	95,41
901910	Mechano-therapy appl; massage app; psychological aptitude-test apparatus	2	0,00	0,00	5 721	95,61
902139	Artificial parts of the body other than teeth, dental fittings & joints	2	0,00	0,00	5 315	96,20
902212	Computed tomography apparatus	1	0,00	0,00	5 029	96,37
902720	Chromatographs and electrophoresis instruments	1	0,00	0,00	4 496	97,05
903084	Other instruments & apparatusspecially designed for telecommunications, with a recording device	2	0,00	0,00	3 780	97,61

Product Code (HS)	Product Description	MFN Applied Tariffs of USA			Value of Total Exports to USA (in $ 000)	Cumulated Share in Reporter's Total Exports to USA (%)
		No of NL	MIN %	MAX %		
901811	Electro-cardiographs	1	0,00	0,00	3 253	98,23
902214	Apparatus based on the use of X-rays, for medical, surgical or veterinary uses	1	0,00	0,00	3 129	98,46

Table 42: CHAPTER 90 – USA=>EU (up to $30,000,000)

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
							1st Destin.		2nd Destin.		3rd Destin.	
		No of NL	MIN %	MAX %			ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901890	Instruments and appliances used in medical or veterinary sciences, nes	8	0,00	0,00	3 006 453	13,91	NLD	23,9	DEU	19,6	BEL	16,5
901839	Needles, catheters, cannulae and the like, nes	1	0,00	0,00	2 097 617	9,71	NLD	39,5	BEL	32,5	IRL	9,2
901819	Electro-diagnostic apparatus, nes	2	0,00	0,00	1 371 157	6,34	DEU	29,6	NLD	25,5	BEL	11,7
902190	Orthopedic and oth appliances,worn,carried or implanted in the body,nes	2	0,00	0,00	1 053 814	4,88	NLD	46,7	SWE	16,0	IRL	15,4
902139	Artificial parts of the body other than teeth, dental fittings & joints	2	0,00	0,00	753 424	3,49	NLD	49,4	BEL	16,1	DNK	9,2
902750	Instruments and apparatus using optical radiations (UV, visible, IR), nes	1	0,00	0,00	698 895	3,23	DEU	26,7	NLD	25,5	GBR	14,6
902110	Orthopaedic/fracture appliances	2	0,00	0,00	523 018	2,42	DEU	45,9	NLD	26,2	GBR	8,7
902131	Artificial joints	1	0,00	0,00	500 779	2,32	BEL	28,7	DEU	25,0	NLD	22,6
902150	Pacemakers for stimulating heart muscles, excluding parts and accessories	1	0,00	0,00	403 533	1,87	SWE	96,9	NLD	1,9	DEU	0,6
901831	Syringes, with or without needles	2	0,00	0,00	337 786	1,56	BEL	26,9	NLD	21,7	DEU	19,2
901850	Ophthalmic instruments and appliances, nes	2	0,00	0,00	336 974	1,56	DEU	20,2	FRA	16,9	NLD	16,8
901920	Oxygen therapy, artificial respiration or oth therapeutic respiration app	1	0,00	0,00	327 595	1,52	DEU	32,2	GBR	23,7	FRA	14,6

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
901813	Magnetic resonance imaging apparatus	1	0,00	0,00	268 596	1,24	NLD	63,9	FRA	11,3	DEU	9,3
902214	Apparatus based on the use of X-rays, for medical, surgical or veterinary uses	1	0,00	0,00	260 984	1,21	BEL	27,0	DEU	21,2	GBR	11,9
902620	Instruments and apparatus for measuring or checking pressure	6	0,00	0,00	233 628	1,08	DEU	31,6	FRA	20,1	GBR	19,2
901812	Ultrasonic scanning apparatus	1	0,00	0,00	224 673	1,04	DEU	26,4	FRA	13,8	NLD	11,1
903040	Instruments and apparatus, specially designed for telecommunications nes	2	0,00	0,00	200 066	0,93	GBR	24,5	DEU	23,0	FRA	12,5
903141	Optical instruments and appliances for inspecting semiconductor wafers or devices or for inspecting photomasks or reticles used in manufacturing semiconductor devices	1	0,00	0,00	199 395	0,92	DEU	67,1	FRA	11,9	AUT	8,1
902730	Spectrometers,spectrophotometers and spectrographs using optical radiation	1	0,00	0,00	178 085	0,82	DEU	30,5	FRA	14,9	GBR	14,1
902212	Computed tomography apparatus	1	0,00	0,00	175 209	0,81	FRA	27,0	ITA	19,2	DEU	11,9
902610	Instruments and apparatus for measure/checking the flow or level of liquid	8	0,00	0,00	159 195	0,74	GBR	23,6	DEU	20,7	FRA	11,5
902690	Parts of inst and app for measure/checking variables of liq or gases,nes	2	0,00	0,00	150 047	0,69	DEU	52,0	GBR	13,6	NLD	9,2
902129	Dental fittings, nes	1	0,00	0,00	145 895	0,68	DEU	34,3	FRA	12,7	ITA	11,4
902720	Chromatographs and electrophoresis instruments	1	0,00	0,00	143 826	0,67	DEU	46,8	FRA	12,8	NLD	11,4
901849	Instruments and appliances, used in dental sciences, nes	2	0,00	0,00	138 587	0,64	DEU	35,0	ITA	22,1	GBR	12,4

Product Code (HS)	Product Description	MFN Applied Tariffs of EU			Value of Total Exports to EU (in $ 000)	Share in Reporter's Total Exports to EU (%)	Principal EU Destinations (with their respective ISO3 codes and shares in total Exports of the product)					
		No of NL	MIN %	MAX %			1st Destin.		2nd Destin.		3rd Destin.	
							ISO3 Code	Share (%)	ISO3 Code	Share (%)	ISO3 Code	Share (%)
902219	Apparatus based on the use of X-rays, for uses other than medical, surgical, dental or veterinary	2	0,00	0,00	129 748	0,60	GBR	26,8	DEU	21,9	FRA	17,5
901832	Tubular metal needles and needles for sutures	2	0,00	0,00	109 452	0,51	BEL	51,1	DEU	19,8	DNK	10,9
902680	Instruments & apparatus for measure/checking variables of liq or gases,nes	4	0,00	0,00	109 139	0,50	GBR	24,3	ITA	16,8	DEU	15,7
901910	Mechano-therapy appl; massage app; psychological aptitude-test apparatus	2	0,00	0,00	102 811	0,48	GBR	25,0	DEU	22,1	NLD	12,8
903082	Instruments and apparatus for measuring or checking semiconductor wafers or devices, nes	1	0,00	0,00	64 192	0,30	DEU	34,3	ITA	19,3	FRA	18,9
903039	Instruments and apparatus, for measuring or checking voltage, current, resistance or power, without a recording device, nes	2	0,00	0,00	51 976	0,24	NLD	29,7	DEU	23,6	GBR	17,8
902221	Apparatus based on the use of alpha, beta or gamma radiations, for medical, surgical, dental or veterinary uses	1	0,00	0,00	49 591	0,23	FRA	63,7	BEL	18,4	DEU	7,5
901811	Electro-cardiographs	1	0,00	0,00	41 448	0,19	DEU	40,9	GBR	15,9	BEL	13,6
902121	Artificial teeth	2	0,00	0,00	36 006	0,17	NLD	37,5	DEU	13,8	ITA	12,5
902213	Apparatus based on the use of X-rays, for dental uses	1	0,00	0,00	31 862	0,15	DEU	90,2	GBR	3,0	NLD	1,6
901814	Scintigraphic apparatus	1	0,00	0,00	31 700	0,15	NLD	21,9	DEU	20,9	FRA	20,5