U.S. Customs and Border Protection

Chemical Reaction Rules

FACT SHEET

Overview

The chemical reaction rules for the new United States-Mexico-Canada Agreement (USMCA) are the same as they were under the North American Free Trade Agreement (NAFTA). However, certain chemicals may be subject to revised rules of origin under USMCA. The complete USMCA product-specific list may be found in Section B: Product Specific Rules of Origin.

The same eight (8) chemical processes confer origin for NAFTA and USMCA. For purposes of heading 27.10., USMCA adds a new rule regarding origin of diluent.

References

- **USMCA**
  - *Final Text:* Chapter 4, Annex 4-B
- **NAFTA**
  - General Note 12

Significant Changes in USMCA

Provision	USMCA	NAFTA
Chemical Reaction Rules	• **No change** – A "chemical reaction" is a process (including a biochemical process) that 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.	
Chemical Process Based Rules	• **No change -** The eight (8) chemical process-based rules are: o Atmospheric Distillation; o Vacuum Distillation; o Catalytic Hydro Processing; o Reforming (Catalytic Reforming); o Alkylation; o Cracking (Thermal and Catalytic); o Isomerization; and o Coking.	
Diluent Rule	• Origin of the diluent that is used to facilitate the transportation of crude petroleum oils is disregarded, provided that the diluent constitutes no more than 40 percent by volume of the good.	• No provision.

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Detailed USMCA/NAFTA Side-by-Side

Provision	USMCA	NAFTA
Chemical Reaction Rules	• Notwithstanding the applicable product-specific rules of origin, a good of chapter 27 that is the product of a chemical reaction is an originating good if the chemical reaction occurred in the territory of one or more of the Parties. • For the purposes of this rule, a "chemical reaction" is a process (including a biochemical process) that 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 chemical reactions: a) dissolving in water or other solvents; b) the elimination of solvents, including solvent water; or c) the addition or elimination of water of crystallization.	• For purposes of heading 2707, 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 the purposes of this definition: a) dissolving in water or other solvents; b) the elimination of solvents, including solvent water; or c) the addition or elimination of water of crystallization.
Chemical Process Based Rules	For the purposes of heading 27.10, the following processes confer origin: a) **Atmospheric Distillation**: A separation process in which petroleum oils are converted, in a distillation tower, into fractions according to boiling point and the vapor then condensed into different liquefied fractions. Liquefied petroleum gas, naphtha, gasoline, kerosene, diesel/heating oil, light gas oils, and lubricating oil are produced from petroleum distillation; b) **Vacuum Distillation:** Distillation at a pressure below atmospheric but not so low that it would be classed as molecular distillation. Vacuum distillation is useful for distilling high-boiling and heat-sensitive materials such as heavy distillates in petroleum oils to produce light to heavy vacuum gas oils and residuum. In some refineries gas oils may be further processed into lubricating oils; c) **Catalytic Hydroprocessing:** The cracking or treating of petroleum oils with hydrogen at high temperature and under pressure, in the presence of special	For the purposes of heading 2710, the following processes confer origin: a) **Atmospheric Distillation:** A separation process in which petroleum oils are converted, in a distillation tower, into fractions according to boiling point and the vapor then condensed into different liquefied fractions. Liquefied petroleum gas, naphtha, gasoline, kerosene, diesel/heating oil, light gas oils and lubricating oil are produced from petroleum distillation; b) **Vacuum Distillation:** Distillation at a pressure below atmospheric but not so low that it would be classed as molecular distillation. Vacuum distillation is useful for distilling high-boiling and heat-sensitive materials such as heavy distillates in petroleum oils to produce light to heavy vacuum gas oils and residuum. In some refineries gas oils may be further processed into lubricating oils; c) **Catalytic Hydroprocessing**: The cracking and/or treating of petroleum oils with hydrogen at high temperature and under pressure, in the presence of special

Provision	USMCA	NAFTA
	catalysts. Catalytic hydroprocessing includes hydrocracking and hydro treating;	catalysts. Catalytic hydroprocessing includes hydrocracking and hydrotreating;
	d) **Reforming (Catalytic Reforming):** The rearrangement of molecules in a naphtha boiling range material to form higher octane aromatics (*i.e*., improved antiknock quality at the expense of gasoline yield). A main product is catalytic reformate, a blend component for gasoline. Hydrogen is another by-product;	d) **Reforming (Catalytic Reforming):** The rearrangement of molecules in a naphtha boiling range material to form higher octane aromatics (i.e., improved antiknock quality at the expense of gasoline yield). A main product is catalytic reformate, a blend component for gasoline. Hydrogen is another by-product;
	e) **Alkylation:** A process whereby a high-octane blending component for gasolines is derived from catalytic combination of an isoparaffin and an olefin;	e) **Alkylation:** A process whereby a high-octane blending component for gasolines is derived from catalytic combination of an isoparaffin and an olefin;
	f) **Cracking:** A refining process involving decomposition and molecular recombination of organic compounds, especially hydrocarbons obtained by means of heat, to form molecules suitable for motor fuels, monomers, petrochemicals, etc.; i. **Thermal Cracking:** Exposes the distillate to temperatures of approximately 540-650C (1000-1200F) for varying periods of time. Process produces modest yields of gasoline and higher yields of residual products for fuel oil blending, or ii. **Catalytic Cracking:** Hydrocarbon vapors are passed at approximately 400C (750F) over a metallic catalyst (e.g., silica-alumina or platinum); the complex recombinations (alkylation, polymerization, isomerization, etc.) occur within seconds to yield high-octane gasoline. Process yields less residual oils and light gases than thermal cracking;	f) **Cracking:** A refining process involving decomposition and molecular recombination of organic compounds, especially hydrocarbons obtained by means of heat, to form molecules suitable for motor fuels, monomers, petrochemicals, etc.: i. **Thermal Cracking:** Exposes the distillate to temperatures of approximately 540o C to 650o C for varying periods of time. Process produces modest yields of gasoline and higher yields of residual products for fuel oil blending; ii. **Catalytic Cracking:** Hydrocarbon vapors are passed at approximately 400C over a metallic catalyst (e.g., silica-alumina or platinum); the complex recombinations (alkylation, polymerization, isomerization, etc.) occur within seconds to yield high-octane gasoline. Process yields less residual oils and light gases than thermal cracking
	g) **Coking**: A thermal cracking process for the conversion of heavy low grade products, such as reduced crude, straight run pitch, cracked tars, and shale oil into solid coke (carbon) and lower boiling hydrocarbon products which are suitable as feed for other refinery units for conversion into lighter products; and	g) **Coking:** A thermal cracking process for the conversion of heavy low-grade products, such as reduced crude, straight run pitch, cracked tars and shale oil, into solid coke (carbon) and lower boiling hydrocarbon products which are suitable as feed for other refinery units for conversion into lighter products; or

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	h) **Isomerization:** The refinery process of converting petroleum compounds into their isomers.	h) **Isomerization:** The refinery process of converting petroleum compounds into their isomers. 1. A change to headings 2701 through 2703 from any other chapter. 2. A change to heading 2704 from any other heading. 3. A change to headings 2705 through 2706 from any other heading, including another heading within that group. *(Reference: General Note 12)*
Diluent Rule	• **Note 4:** For the purposes of determining whether or not a good of heading 27.09 is an originating good, the origin of diluent of heading 27.09 or 27.10 that is used to facilitate the transportation between Parties of crude petroleum oils and crude oils obtained from bituminous minerals of heading 27.09 is disregarded, provided that the diluent constitutes no more than 40 percent by volume of the good. *(Reference: Chapter 4, Annex 4-B)*	• No provision.