Sub-Chapter II

ALCOHOLS AND THEIR HALOGENATED, SULPHONATED, NITRATED OR NITROSATED DERIVATIVES

29.05 - Acyclic alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives.

- Saturated monohydric alcohols :

2905.11 - - Methanol (methyl alcohol)

2905.12 - - Propan-1-ol (propyl alcohol) and propan-2-ol (isopropyl alcohol)

2905.13 - - Butan-1-ol (*n*-butyl alcohol)

2905.14 - - Other butanols

2905.16 - - Octanol (octyl alcohol) and isomers thereof

2905.17 - - Dodecan-1-ol (lauryl alcohol), hexadecan-1-ol (cetyl alcohol) and octadecan-1-ol (stearyl alcohol)

2905.19 - - Other

- Unsaturated monohydric alcohols :

2905.22 - - Acyclic terpene alcohols

2905.29 - - Other

- Diols :

2905.31 - - Ethylene glycol (ethanediol)

2905.32 - - Propylene glycol (propane-1,2-diol)

2905.39 - - Other

- Other polyhydric alcohols :

2905.41 - - 2-Ethyl-2-(hydroxymethyl)propane-1,3-diol (trimethylolpropane)

2905.42 - - Pentaerythritol

2905.43 - - Mannitol

2905.44 - - D-glucitol (sorbitol)

2905.45 - - Glycerol

2905.49 - - Other

- Halogenated, sulphonated, nitrated or nitrosated derivatives of acyclic alcohols :

2905.51 - - Ethchlorvynol (INN)

2905.59 - - Other

Acyclic alcohols are derivatives of acyclic hydrocarbons obtained by replacing one or more atoms of hydrogen by the hydroxyl group. They are oxygenated compounds which react with acids giving the compounds known as esters.

The alcohols may be primary (containing the characteristic group $-CH_2OH$), secondary (containing the characteristic group >CHOH) or tertiary (containing the characteristic group ⟩COH).

This heading covers the acyclic alcohols described below and their halogenated, sulphonated, nitrated, nitrosated, sulphohalogenated, nitrohalogenated, nitrosulphonated, nitrosulpho-halogenated or other compound derivatives (e.g., the monochlorohydrins of glycerol and of ethylene glycol). Aldehyde-bisulphite compounds and ketone-bisulphite compounds are classified as sulphonated derivatives of alcohols, e.g., acetaldehyde sodium bisulphite, formaldehyde sodium bisulphite, valeraldehyde sodium bisulphite and acetone sodium bisulphite. The heading also covers metal alcoholates of alcohols of this heading and of ethanol.

This heading **excludes** ethanol (ethyl alcohol), whether or not pure (see Explanatory Notes to **headings 22.07** and **22.08**).

(A) SATURATED MONOHYDRIC ALCOHOLS

(1) **Methanol** (methyl alcohol). Obtained by dry distillation of wood, or by synthesis. Pure methanol is a mobile, colourless, inflammable liquid, with a characteristic odour; used in organic synthesis, as a solvent, in the dyestuff industry, and for the manufacture of explosives, pharmaceutical products, etc. Wood naphtha (crude methyl alcohol) obtained by dry distillation of wood is **excluded** (**heading 38.07**).

(2) **Propan-1-ol** (propyl alcohol) **and propan-2-ol** (isopropyl alcohol). These products are **colourless** liquids. The latter is obtained by synthesis from propylene and is used in the preparation of acetone, and methacrylates, and as a solvent, etc.

(3) **Butan-1-ol** (*n*-butyl alcohol) **and other butanols** (4 isomers). Colourless liquids, used in organic synthesis and as solvents.

(4) **Pentanol** (amyl alcohol) **and isomers thereof**. There are eight possible isomers. Fermentation amyl alcohol is chiefly obtained from fusel oil (also known as grain oil, molasses oil, potato oil, etc., heading 38.24) which is itself obtained during the rectification of ethyl alcohol. Amyl alcohols may also be synthesised from the hydrocarbon gases obtained during the cracking of petroleum.

(5) **Hexanols and heptanols** (hexyl and heptyl alcohol).

(6) **Octanol** (octyl alcohol) and **isomers thereof**.

(7) **Dodecan-1-ol** (lauryl alcohol), **hexadecan-1-ol** (cetyl alcohol) **and octadecan-1-ol** (stearyl alcohol).

This heading **excludes** fatty alcohols of a purity of less than 90 % (calculated on the weight of the dry product) (**heading 38.23**).

(B) UNSATURATED MONOHYDRIC ALCOHOLS

(1) **Allyl alcohol**.

(2) **Ethylpropylallyl alcohol** (2-ethyl-2-hexen-1-ol).

(3) **Oleyl alcohol**.

(4) **Acyclic terpene alcohols**, e.g., phytol. Terpene alcohols are fairly readily converted into hydro-aromatic compounds and are found in certain essential oils. Examples are geraniol, citronellol, linalool, rhodinol and nerol, used in perfumery.

(C) DIOLS AND OTHER POLYHYDRIC ALCOHOLS

(I) **Diols**

(1) **Ethylene glycol** (ethanediol). A colourless, syrupy liquid with a faint, pungent odour. Used in the manufacture of nitroglycol (explosive), as a solvent for varnishes, as an anti-freeze agent or in organic synthesis.

(2) **Propylene glycol** (propane-1,2-diol). Colourless, viscous and hygroscopic liquid.

(II) **Other polyhydric alcohols**

(1) **Glycerol** (propane-1,2,3-triol). Glycerol (also known as glycerine) may be obtained either by purification of crude glycerol (e.g., by distillation, ion-exchange purification) or synthetically from propylene.

Glycerol has a sweet taste. It is in general colourless and odourless, but may sometimes have a slight yellowish shade.

To fall in this heading, glycerol must have a purity of 95 % or more (calculated on the weight of the dry product). Glycerol of lower purity (crude glycerol) is **excluded** (**heading 15.20**).

(2) **2-Ethyl-2-(hydroxymethyl)propane-1,3-diol** (trimethylolpropane). Used in the manufacture of varnishes and alkyd resins, synthetic drying oils, urethane foams and coatings.

(3) **Pentaerythritol**. White crystalline powder, used in the manufacture of explosives and plastics.

(4) **Mannitol**. White crystalline powder or granules. Found in the vegetable kingdom (sap of the *Fraxinus ornus*); obtained by synthesis. Used as a mild laxative and in the manufacture of explosives (mannitol hexanitrate).

(5) **D-glucitol** (sorbitol). White crystalline powder which is hygroscopic. Used in perfumery, in the manufacture of ascorbic acid (used in medicine) and of surface-active agents, as a substitute for glycerol and as a humectant (i.e., moisture-conditioning agent).

(6) **Pentanetriol, hexanetriol, etc**.

This heading **excludes** sorbitol of **heading 38.24**.

(D) HALOGENATED, SULPHONATED, NITRATED OR NITROSATED DERIVATIVES OF ACYCLIC ALCOHOLS

(1) **Chloral hydrate** ($CCl_3CH(OH)_2$) (2,2,2-trichloroethane-1,1-diol). Colourless toxic crystals; used as a hypnotic and in organic synthesis.

(2) **Trichloro-tertiary-butyl alcohol**; used in medicine.

(3) **Ethchlorvynol**. A psychotropic substance - see the list at the end of Chapter 29.