

29.20 - Esters of other inorganic acids of non-metals (excluding esters of hydrogen halides) and their salts; their halogenated, sulphonated, nitrated or nitrosated derivatives.

- Thiophosphoric esters (phosphorothioates) and their salts; their halogenated, sulphonated, nitrated or nitrosated derivatives :

2920.11 - - Parathion (ISO) and parathion-methyl (ISO) (methyl-parathion)

2920.19 - - Other

2920.90 - Other

This heading covers esters of other inorganic acids of non-metals, that is, acids in which the anion contains only non-metal elements. This heading **does not cover** :

- (a) "Esters" of the hydrogen halides (generally **heading 29.03**), and
- (b) Esters included in later headings of this Chapter (e.g., "esters" of isocyanic acid (isocyanates) (**heading 29.29**) and "esters" of hydrogen sulphide (generally **heading 29.30**).

The esters of this heading include :

- (A) **Thiophosphoric esters** (phosphorothioates) **and their salts**, including sodium *O,O*-dibutyl- and *O,O*-ditolyldithiophosphates.

- (B) **Sulphuric esters and their salts.**

Sulphuric esters may be either neutral or acid.

- (1) **Methyl hydrogen sulphate** ($\text{CH}_3\text{OSO}_2\text{OH}$). An oily liquid.
- (2) **Dimethyl sulphate** ($(\text{CH}_3\text{O})_2\text{SO}_2$). Colourless or slightly yellow liquid with a slight odour of mint; toxic, corrosive, lachrymatory and irritating to the respiratory tracts. Used in organic synthesis.
- (3) **Ethyl hydrogen sulphate** ($\text{C}_2\text{H}_5\text{OSO}_2\text{OH}$). Syrupy liquid.
- (4) **Diethyl sulphate** ($(\text{C}_2\text{H}_5\text{O})_2\text{SO}_2$). Liquid with an odour of mint.

- (C) **Nitrous and nitric esters.**

Nitrous esters are liquids with an aromatic odour, e.g., methyl, ethyl, propyl, butyl and pentyl nitrites.

Nitric esters are mobile liquids with an agreeable odour; they decompose when suddenly heated. They include methyl, ethyl, propyl, butyl and pentyl nitrates.

Nitroglycerol, tetranitropentaerythritol (penthrite) and nitroglycol are classified here if unmixed; when presented in the form of prepared explosives they are **excluded** (**heading 36.02**).

(D) **Carbonic or peroxocarbonic esters and their salts.**

Esters of carbonic acid may be acid or neutral.

- (1) **Diguaiacyl carbonate.** Crystalline light white powder, with a slight odour of **guaiacol**.
Used in medicine and as an intermediate in synthesis of perfumes.
- (2) **Tetraethyl orthocarbonate** ($C(OC_2H_5)_4$).
- (3) **Diethyl carbonate** ($C(OC_2H_5)_2$).
- (4) **Bis(4-tert-butylcyclohexyl) peroxodicarbonate.**
- | (5) **tert-Butylperoxy 2-ethylhexyl carbonate.**

Ethyl chlorocarbonate (or ethyl chloroformate) is **excluded** (**heading 29.15**).

(E) **Silicic acid esters and their salts** (tetraethyl silicate, etc.).

This heading **does not cover** alcoholates or esters of acid-function metal hydroxides, e.g., titanium tetra-*n*-butoxide (also known as tetrabutyl titanate) (**heading 29.05**).
