Sub-Chapter VIII

ESTERS OF INORGANIC ACIDS OF NON-METALS AND THEIR SALTS, AND THEIR HALOGENATED, SULPHONATED, NITRATED OR NITROSATED DERIVATIVES

GENERAL

(A) ESTERS OF INORGANIC ACIDS OF NON-METALS

These compounds are usually formed by the reaction of an alcohol or phenol with inorganic acids of non-metals. They have the general formula (ROX) in which R is an alcoholic or phenolic radical and X is the residue of the inorganic acid molecule known as an acid radical.

The acid radical of nitric acid is ($–NO_2$), of sulphuric acid ($=SO_2$), of phosphoric acid ($\equiv PO$); and of carbonic acid ($>CO$).

This sub-Chapter **excludes** esters of later headings in this Chapter.

(B) SALTS OF ESTERS OF INORGANIC ACIDS OF NON-METALS

These can be obtained only from esters of inorganic polybasic acids of non-metals (sulphuric, phosphoric, silicic, etc.). Polybasic acids have more than one replaceable acidic element, and when all such elements are not esterified the result is an **acid ester**.

Appropriate treatment of these acid esters produces a **salt of an ester of an inorganic acid of a non-metal**.

Nitrous and nitric acids, on the other hand, being monobasic, can give only **neutral esters**.

29.19 - Phosphoric esters and their salts, including lactophosphates; their halogenated, sulphonated, nitrated or nitrosated derivatives.

2919.10 - Tris(2,3-dibromopropyl) phosphate

2919.90 - Other

Phosphoric acid, being tribasic, gives three types of phosphoric esters according to whether one, two or all of its acidic groups are esterified.

The esters and their salts include :

(1) **Glycerophosphoric acid**. Derived from saturation of one of the primary alcoholic groups of glycerol with the residue of phosphoric acid.

The most important salts of these esters are used in medicine as tonics, e.g. :

(a) Calcium glycerophosphate.

(b) Iron glycerophosphate.

(c) Sodium glycerophosphate.

(2) **Inositolhexaphosphoric acid** and **inositolhexaphosphates.**

(3) **Tributyl phosphate**. Colourless, odourless liquid; used as a plasticiser.

(4) **Triphenyl phosphate**. Colourless and odourless crystals; used for the manufacture of plastics (e.g., celluloid), for waterproofing paper, etc.

(5) **Tritolyl phosphate**. Colourless or yellowish liquid; used as a plasticiser for cellulose products and synthetic resins, for the flotation of ores, etc.

(6) **Trixylyl phosphate**.

(7) **Triguaiacyl phosphate**.

(8) **Lactophosphates**, e.g., calcium lactophosphate, whether or not chemically defined.