Sub-Chapter II

INORGANIC ACIDS AND INORGANIC OXYGEN COMPOUNDS OF NON-METALS

GENERAL

Acids contain hydrogen which can be wholly or partly replaced by metals (or by ions with analogous properties, e.g., the ammonium ion (NH_4^+)) as a result salts are formed. Acids react with bases to form salts, and with alcohols to form esters. In the liquid state or in solution, they are electrolytes which produce hydrogen at the cathode. When one or more molecules of water are eliminated from those acids containing oxygen, anhydrides are obtained. Most oxides of non-metals are anhydrides.

This sub-Chapter covers **inorganic oxygen compounds of non-metals** (anhydrides and other), and also **inorganic acids, the anode radical of which is a non-metal**.

On the other hand it **excludes** anhydrides and acids formed, respectively, by metal oxides or hydroxides; these generally fall in **sub-Chapter IV** (e.g., metal oxides, hydroxides and peroxides, such as acids or anhydrides of chromium, molybdenum, tungsten and vanadium). In certain cases, however, they fall elsewhere, e.g., in **heading 28.43** (compounds of precious metals), **heading 28.44** or **28.45** (compounds of radioactive elements and isotopes) or **heading 28.46** (compounds of rare-earth metals, of scandium or yttrium).

Oxygen compounds of hydrogen are also **excluded** and are classified under **heading 22.01** (water), **heading 28.45** (heavy water), **heading 28.47** (hydrogen peroxide) or **heading 28.53** (distilled and conductivity water and water of similar purity, including water treated with ion-exchange media).

28.06 - Hydrogen chloride (hydrochloric acid); chlorosulphuric acid.

2806.10 - Hydrogen chloride (hydrochloric acid)

2806.20 - Chlorosulphuric acid

(A) HYDROGEN CHLORIDE (HYDROCHLORIC ACID)

Hydrogen chloride (HCl) is a colourless fuming gas with a suffocating odour, obtained by the action of hydrogen (or of water and coke) on chlorine, or by the action of sulphuric acid on sodium chloride.

It is easily liquefied under pressure and very soluble in water. It is presented under pressure in liquid form in steel cylinders. It is also presented in concentrated aqueous solutions (usually 28 to 38 %) (hydrochloric acid, muriatic acid, spirits of salt) in glass or earthenware containers or in rubber-lined tank wagons or tank trucks. These pungent-smelling solutions are yellowish if the product contains impurities (ferric chloride, arsenic, sulphur dioxide, sulphuric acid), and colourless if pure. The concentrated solutions give off white fumes in damp air.

Hydrochloric acid has many uses, e.g., pickling iron, zinc or other metals, extracting gelatin from bones, purifying animal black, preparing metal chlorides, etc. Hydrogen chloride gas is often employed in organic syntheses (e.g., in the manufacture of chloroprene, vinyl chloride, artificial camphor, rubber hydrochloride).

(B) CHLOROSULPHURIC ACID (CHLOROSULPHONIC ACID)

Chlorosulphuric acid, commercially designated as chlorosulphonic acid ("sulphuric chlorohydrin ") and having the chemical formula $ClSO_2OH$, results from the dry combination of hydrogen chloride with sulphur trioxide or oleum.

It is a highly corrosive, colourless or brownish liquid with an irritating odour; it fumes in a humid atmosphere and decomposes on contact with water or if heated.

It is used in organic syntheses (manufacture of saccharin, thioindigo, indigosols, etc.).

The heading **excludes** hypochlorous, chloric or perchloric acids (**heading 28.11**). The heading also excludes sulphur dichloride dioxide (sulphuryl chloride) (**heading 28.12**), which is sometimes erroneously referred to as "chlorosulphuric acid".