28.32 - Sulphites; thiosulphates.

2832.10 - Sodium sulphites

2832.20 - Other sulphites

2832.30 - Thiosulphates

Subject to the **exclusions** mentioned in the introduction to this sub-Chapter, this heading covers :

(A) **Metal sulphites** - salts of sulphurous acid (H_2SO_3) (which exists only in aqueous solution and corresponds to the sulphur dioxide of heading 28.11).

(B) **Metal thiosulphates** - salts of thiosulphuric acid ($H_2S_2O_3$) which does not exist in the pure state.

The heading **excludes** concentrated sulphite lye (**heading 38.04**), and the industrial products known as " hydrosulphites " stabilised by organic substances (**heading 28.31**).

(A) SULPHITES

This heading covers both neutral and acid sulphites.

(1) **Sodium sulphites**. These include sodium hydrogen sulphite ($NaHSO_3$), disodium disulphite ($Na_2SO_3.SO_2$ or $Na_2S_2O_5$) or and sodium sulphite (Na_2SO_3).

(a) **Sodium hydrogen sulphite** (" sodium bisulphite ", sodium acid sulphite) results from the action of sulphur dioxide on an aqueous solution of sodium carbonate. Colourless powder or crystals, rather unstable, with a smell of sulphur dioxide and very soluble in water; also presented in concentrated solution, yellowish in colour. Used as a reducing agent in organic synthesis, in the manufacture of indigo, for bleaching wool or silk, as a vulcanising agent for the treatment of latex, in tanning, in oenology (as an antiseptic to preserve wine) and to reduce the buoyancy of minerals in flotation processes.

(b) **Disodium disulphite** (sodium metabisulphite, pyrosulphite, dry sulphite and, in some languages, incorrectly referred to as " sodium bisulphite crystals "). Obtained from the hydrogen sulphite; oxidises rather rapidly, especially in a humid atmosphere. Used for the same purposes as the acid sulphite and in viticulture and photography.

(c) **Sodium sulphite** (neutral sodium sulphite), prepared by neutralising a solution of the hydrogen sulphite by means of sodium carbonate. Anhydrous (in powder) or crystallised (with 7 H_2O) colourless, soluble in water. Used in photography, in breweries, for treating rosin, as an antiseptic or bleaching agent, in the manufacture of other sulphites or thiosulphates and of organic dyes, etc.

(2) **Ammonium sulphite** ($(NH_4)_2SO_3.H_2O$). Results from the action of sulphur dioxide on ammonia. Colourless crystals, soluble in water, oxidising in the air. Used in organic synthesis.

(3) **Potassium sulphites**. Appear in the same forms as sodium sulphites.

(a) **Potassium hydrogen sulphite**, crystalline, used in dyeing and in oenology.

(b) **Dipotassium disulphite** (potassium metabisulphite), a white powder or in scales, used in photography, for the carroting of hair in the felt hat industry or as an antiseptic.

(c) **Neutral sulphite**, crystallised (with 2 H_2O) used in textile printing.

(4) **Calcium sulphites**, which include :

(a) **Calcium dihydrogen bis(sulphite)** (calcium bisulphite) ($Ca(HSO_3)_2$), obtained by the action of sulphur dioxide on calcium hydroxide. Used to dissolve lignin in the preparation of chemical pulp, for bleaching (e.g., sponges), as an antichlor and to prevent cloudiness in beer.

(b) **Neutral calcium sulphite** ($CaSO_3$), a white crystalline powder or hydrated needles (with 2 H_2O), sparingly soluble in water, efflorescing in the air. Used in medicine or in oenology.

(5) **Other sulphites**. These include magnesium sulphites (same uses as calcium sulphites), zinc sulphite (antiseptic and mordant), or chromium hydrogen sulphite (mordant).

(B) THIOSULPHATES

(1) **Ammonium thiosulphate** ($(NH_4)_2S_2O_3$). Prepared from sodium thiosulphate. Colourless crystals, deliquescent and soluble in water. Used for photographic fixing baths and as an antiseptic.

(2) **Sodium thiosulphate** ($Na_2S_2O_3.5H_2O$). Results from the action of sulphur on a solution of sodium sulphite. In the form of colourless crystals, very soluble in water, unaffected by air. Used as a fixing agent in photography, as an antichlor in the bleaching of textiles or paper, in chrome tanning and in organic synthesis.

(3) **Calcium thiosulphate** ($CaS_2O_3.H_2O$). Prepared by oxidation of calcium sulphide. White crystalline powder, soluble in water. Used in medicine and in the preparation of other thiosulphates.

(4) **Other thiosulphates**. These include : barium thiosulphate (pigment with a pearly sheen); aluminium thiosulphate (used in organic synthesis); lead thiosulphate (used in the preparation of phosphorus-free matches).