

## Chapter 28

### **Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes**

#### **Notes.**

- 1.- Except where the context otherwise requires, the headings of this Chapter apply only to :
  - (a) Separate chemical elements and separate chemically defined compounds, whether or not containing impurities;
  - (b) The products mentioned in (a) above dissolved in water;
  - (c) The products mentioned in (a) above dissolved in other solvents provided that the solution constitutes a normal and necessary method of putting up these products adopted solely for reasons of safety or for transport and that the solvent does not render the product particularly suitable for specific use rather than for general use;
  - (d) The products mentioned in (a), (b) or (c) above with an added stabiliser (including an anti-caking agent) necessary for their preservation or transport;
  - (e) The products mentioned in (a), (b), (c) or (d) above with an added anti-dusting agent or a colouring substance added to facilitate their identification or for safety reasons, provided that the additions do not render the product particularly suitable for specific use rather than for general use.
- 2.- In addition to dithionites and sulphoxylates, stabilised with organic substances (heading 28.31), carbonates and peroxocarbonates of inorganic bases (heading 28.36), cyanides, cyanide oxides and complex cyanides of inorganic bases (heading 28.37), fulminates, cyanates and thiocyanates, of inorganic bases (heading 28.38), organic products included in headings 28.43 to 28.46 and carbides (heading 28.49), only the following compounds of carbon are to be classified in this Chapter :
  - (a) Oxides of carbon, hydrogen cyanide and fulminic, isocyanic, thiocyanic and other simple or complex cyanogen acids (heading 28.11);
  - (b) Halide oxides of carbon (heading 28.12);
  - (c) Carbon disulphide (heading 28.13);
  - (d) Thiocarbonates, selenocarbonates, tellurocarbonates, selenocyanates, tellurocyanates, tetrathiocyanatodiamminochromates (reineckates) and other complex cyanates, of inorganic bases (heading 28.42);
  - (e) Hydrogen peroxide, solidified with urea (heading 28.47), carbon oxysulphide, thiocarbonyl halides, cyanogen, cyanogen halides and cyanamide and its metal derivatives (heading 28.51) other than calcium cyanamide, whether or not pure (Chapter 31).
- 3.- Subject to the provisions of Note 1 to Section VI, this Chapter does not cover :
  - (a) Sodium chloride or magnesium oxide, whether or not pure, or other products of Section V;
  - (b) Organo-inorganic compounds other than those mentioned in Note 2 above;
  - (c) Products mentioned in Note 2, 3, 4 or 5 to Chapter 31;
  - (d) Inorganic products of a kind used as luminophores, of heading 32.06; glass frit and other glass in the form of powder, granules or flakes, of heading 32.07;
  - (e) Artificial graphite (heading 38.01); products put up as charges for fire-extinguishers or put up in fire-extinguishing grenades, of heading 38.13; ink removers put up in packings for retail sale, of heading 38.24; cultured crystals (other than optical elements) weighing not less than 2.5 g each, of the halides of the alkali or alkaline-earth metals, of heading 38.24;
  - (f) Precious or semi-precious stones (natural, synthetic or reconstructed) or dust or powder of such stones (headings 71.02 to 71.05), or precious metals or precious metal alloys of Chapter 71;
  - (g) The metals, whether or not pure, metal alloys or cermets, including sintered metal carbides (metal carbides sintered with a metal), of Section XV; or
  - (h) Optical elements, for example, of the halides of the alkali or alkaline-earth metals (heading 90.01).
- 4.- Chemically defined complex acids consisting of a non-metal acid of sub-Chapter II and a metal acid of sub-Chapter IV are to be classified in heading 28.11.
- 5.- Headings 28.26 to 28.42 apply only to metal or ammonium salts or peroxysalts.

Except where the context otherwise requires, double or complex salts are to be classified in heading 28.42.
- 6.- Heading 28.44 applies only to :
  - (a) Technetium (atomic No. 43), promethium (atomic No. 61), polonium (atomic No. 84) and all elements with an atomic number greater than 84;
  - (b) Natural or artificial radioactive isotopes (including those of the precious metals or of the base metals of Sections XIV and XV), whether or not mixed together;

- (c) Compounds, inorganic or organic, of these elements or isotopes, whether or not chemically defined, whether or not mixed together;
- (d) Alloys, dispersions (including cermets), ceramic products and mixtures containing these elements or isotopes or inorganic or organic compounds thereof and having a specific radioactivity exceeding 74 Bq/g (0.002  $\mu$ Ci/g);
- (e) Spent (irradiated) fuel elements (cartridges) of nuclear reactors;
- (f) Radioactive residues whether or not usable.

The term "isotopes", for the purposes of this Note and of the wording of headings 28.44 and 28.45, refers to :

- individual nuclides, excluding, however, those existing in nature in the monoisotopic state;
  - mixtures of isotopes of one and the same element, enriched in one or several of the said isotopes, that is, elements of which the natural isotopic composition has been artificially modified.
- 7.- Heading 28.48 includes copper phosphide (phosphor copper) containing more than 15 % by weight of phosphorus.
- 8.- Chemical elements (for example, silicon and selenium) doped for use in electronics are to be classified in this Chapter, provided that they are in forms unworked as drawn, or in the form of cylinders or rods. When cut in the form of discs, wafers or similar forms, they fall in heading 38.18.

Heading	H.S. Code	
		<b>I.- CHEMICAL ELEMENTS</b>
<b>28.01</b>		<b>Fluorine, chlorine, bromine and iodine.</b>
	2801.10	- Chlorine
	2801.20	- Iodine
	2801.30	- Fluorine; bromine
<b>28.02</b>	2802.00	<b>Sulphur, sublimed or precipitated; colloidal sulphur.</b>
<b>28.03</b>	2803.00	<b>Carbon (carbon blacks and other forms of carbon not elsewhere specified or included).</b>
<b>28.04</b>		<b>Hydrogen, rare gases and other non-metals.</b>
	2804.10	- Hydrogen
		- Rare gases :
	2804.21	-- Argon
	2804.29	-- Other
	2804.30	- Nitrogen
	2804.40	- Oxygen
	2804.50	- Boron; tellurium
		- Silicon :
	2804.61	-- Containing by weight not less than 99.99 % of silicon
	2804.69	-- Other
	2804.70	- Phosphorus
	2804.80	- Arsenic
	2804.90	- Selenium
<b>28.05</b>		<b>Alkali or alkaline-earth metals; rare-earth metals, scandium and yttrium, whether or not intermixed or interalloyed; mercury.</b>
		- Alkali or alkaline-earth metals :
	2805.11	-- Sodium
	2805.12	-- Calcium
	2805.19	-- Other

	2805.30	- Rare-earth metals, scandium and yttrium, whether or not intermixed or interalloyed
	2805.40	- Mercury
		II.- INORGANIC ACIDS AND INORGANIC OXYGEN COMPOUNDS OF NON-METALS
<b>28.06</b>		<b>Hydrogen chloride (hydrochloric acid); chlorosulphuric acid.</b>
	2806.10	- Hydrogen chloride (hydrochloric acid)
	2806.20	- Chlorosulphuric acid
<b>28.07</b>	2807.00	<b>Sulphuric acid; oleum.</b>
<b>28.08</b>	2808.00	<b>Nitric acid; sulphonitric acids.</b>
<b>28.09</b>		<b>Diphosphorus pentoxide; phosphoric acid; polyphosphoric acids, whether or not chemically defined.</b>
	2809.10	- Diphosphorus pentoxide
	2809.20	- Phosphoric acid and polyphosphoric acids
<b>28.10</b>	2810.00	<b>Oxides of boron; boric acids.</b>
<b>28.11</b>		<b>Other inorganic acids and other inorganic oxygen compounds of non-metals.</b>
		- Other inorganic acids :
	2811.11	-- Hydrogen fluoride (hydrofluoric acid)
	2811.19	-- Other
		- Other inorganic oxygen compounds of non-metals :
	2811.21	-- Carbon dioxide
	2811.22	-- Silicon dioxide
	2811.23	-- Sulphur dioxide
	2811.29	-- Other
		III.- HALOGEN OR SULPHUR COMPOUNDS OF NON-METALS
<b>28.12</b>		<b>Halides and halide oxides of non-metals.</b>
	2812.10	- Chlorides and chloride oxides
	2812.90	- Other
<b>28.13</b>		<b>Sulphides of non-metals; commercial phosphorus trisulphide.</b>
	2813.10	- Carbon disulphide
	2813.90	- Other
		IV.- INORGANIC BASES AND OXIDES, HYDROXIDES AND PEROXIDES OF METALS
<b>28.14</b>		<b>Ammonia, anhydrous or in aqueous solution.</b>
	2814.10	- Anhydrous ammonia
	2814.20	- Ammonia in aqueous solution
<b>28.15</b>		<b>Sodium hydroxide (caustic soda); potassium hydroxide (caustic potash); peroxides of sodium or potassium.</b>
		- Sodium hydroxide (caustic soda) :
	2815.11	-- Solid
	2815.12	-- In aqueous solution (soda lye or liquid soda)

	2815.20	- Potassium hydroxide (caustic potash)
	2815.30	- Peroxides of sodium or potassium
<b>28.16</b>		<b>Hydroxide and peroxide of magnesium; oxides, hydroxides and peroxides, of strontium or barium.</b>
	2816.10	- Hydroxide and peroxide of magnesium
	2816.40	- Oxides, hydroxides and peroxides, of strontium or barium
<b>28.17</b>	2817.00	<b>Zinc oxide; zinc peroxide.</b>
<b>28.18</b>		<b>Artificial corundum, whether or not chemically defined; aluminium oxide; aluminium hydroxide.</b>
	2818.10	- Artificial corundum, whether or not chemically defined
	2818.20	- Aluminium oxide, other than artificial corundum
	2818.30	- Aluminium hydroxide
<b>28.19</b>		<b>Chromium oxides and hydroxides.</b>
	2819.10	- Chromium trioxide
	2819.90	- Other
<b>28.20</b>		<b>Manganese oxides.</b>
	2820.10	- Manganese dioxide
	2820.90	- Other
<b>28.21</b>		<b>Iron oxides and hydroxides; earth colours containing 70 % or more by weight of combined iron evaluated as Fe<sub>2</sub>O<sub>3</sub>.</b>
	2821.10	- Iron oxides and hydroxides
	2821.20	- Earth colours
<b>28.22</b>	2822.00	<b>Cobalt oxides and hydroxides; commercial cobalt oxides.</b>
<b>28.23</b>	2823.00	<b>Titanium oxides.</b>
<b>28.24</b>		<b>Lead oxides; red lead and orange lead.</b>
	2824.10	- Lead monoxide (litharge, massicot)
	2824.20	- Red lead and orange lead
	2824.90	- Other
<b>28.25</b>		<b>Hydrazine and hydroxylamine and their inorganic salts; other inorganic bases; other metal oxides, hydroxides and peroxides.</b>
	2825.10	- Hydrazine and hydroxylamine and their inorganic salts
	2825.20	- Lithium oxide and hydroxide
	2825.30	- Vanadium oxides and hydroxides
	2825.40	- Nickel oxides and hydroxides
	2825.50	- Copper oxides and hydroxides
	2825.60	- Germanium oxides and zirconium dioxide
	2825.70	- Molybdenum oxides and hydroxides
	2825.80	- Antimony oxides
	2825.90	Other
		V.- SALTS AND PEROXYSALTS, OF INORGANIC
		ACIDS AND METALS
<b>28.26</b>		<b>Fluorides; fluorosilicates, fluoroaluminates and other complex fluorine salts.</b>

		- Fluorides :
	2826.11	-- Of ammonium or of sodium
	2826.12	-- Of aluminium
	2826.19	-- Other
	2826.20	- Fluorosilicates of sodium or of potassium
	2826.30	- Sodium hexafluoroaluminate (synthetic cryolite)
	2826.90	- Other
<b>28.27</b>		<b>Chlorides, chloride oxides and chloride hydroxides; bromides and bromide oxides; iodides and iodide oxides.</b>
	2827.10	- Ammonium chloride
	2827.20	- Calcium chloride
		- Other chlorides :
	2827.31	-- Of magnesium
	2827.32	-- Of aluminium
	2827.33	-- Of iron
	2827.34	-- Of cobalt
	2827.35	-- Of nickel
	2827.36	-- Of zinc
	2827.39	-- Other
		- Chloride oxides and chloride hydroxides :
	2827.41	-- Of copper
	2827.49	-- Other
		- Bromides and bromide oxides :
	2827.51	-- Bromides of sodium or of potassium
	2827.59	-- Other
	2827.60	- Iodides and iodide oxides
<b>28.28</b>		<b>Hypochlorites; commercial calcium hypochlorite; chlorites; hypobromites.</b>
	2828.10	- Commercial calcium hypochlorite and other calcium hypochlorites
	2828.90	- Other
<b>28.29</b>		<b>Chlorates and perchlorates; bromates and perbromates; iodates and periodates.</b>
		- Chlorates :
	2829.11	-- Of sodium
	2829.19	-- Other
	2829.90	- Other
<b>28.30</b>		<b>Sulphides; polysulphides, whether or not chemically defined.</b>
	2830.10	- Sodium sulphides
	2830.20	- Zinc sulphide
	2830.30	- Cadmium sulphide
	2830.90	- Other
<b>28.31</b>		<b>Dithionites and sulphonylates.</b>
	2831.10	- Of sodium
	2831.90	- Other
<b>28.32</b>		<b>Sulphites; thiosulphates.</b>

	2832.10	- Sodium sulphites
	2832.20	- Other sulphites
	2832.30	- Thiosulphates
<b>28.33</b>		<b>Sulphates; alums; peroxosulphates (persulphates).</b>
		- Sodium sulphates :
	2833.11	-- Disodium sulphate
	2833.19	-- Other
		- Other sulphates :
	2833.21	-- Of magnesium
	2833.22	-- Of aluminium
	2833.23	-- Of chromium
	2833.24	-- Of nickel
	2833.25	-- Of copper
	2833.26	-- Of zinc
	2833.27	-- Of barium
	2833.29	-- Other
	2833.30	- Alums
	2833.40	- Peroxosulphates (persulphates)
<b>28.34</b>		<b>Nitrites; nitrates.</b>
	2834.10	- Nitrites
		- Nitrates :
	2834.21	-- Of potassium
	2834.29	-- Other
<b>28.35</b>		<b>Phosphinates (hypophosphites), phosphonates (phosphites) and phosphates; polyphosphates, whether or not chemically defined.</b>
	2835.10	- Phosphinates (hypophosphites) and phosphonates (phosphites)
		- Phosphates :
	2835.22	-- Of mono- or disodium
	2835.23	-- Of trisodium
	2835.24	-- Of potassium
	2835.25	-- Calcium hydrogenorthophosphate ("dicalcium phosphate")
	2835.26	-- Other phosphates of calcium
	2835.29	-- Other
		- Polyphosphates :
	2835.31	-- Sodium triphosphate (sodium tripolyphosphate)
	2835.39	-- Other
<b>28.36</b>		<b>Carbonates; peroxocarbonates (percarbonates); commercial ammonium carbonate containing ammonium carbamate.</b>
	2836.10	- Commercial ammonium carbonate and other ammonium carbonates
	2836.20	- Disodium carbonate
	2836.30	- Sodium hydrogencarbonate (sodium bicarbonate)
	2836.40	- Potassium carbonates
	2836.50	- Calcium carbonate
	2836.60	- Barium carbonate

	2836.70	- Lead carbonates
		- Other :
	2836.91	-- Lithium carbonates
	2836.92	-- Strontium carbonate
	2836.99	-- Other
<b>28.37</b>		<b>Cyanides, cyanide oxides and complex cyanides.</b>
		- Cyanides and cyanide oxides :
	2837.11	-- Of sodium
	2837.19	-- Other
	2837.20	- Complex cyanides
<b>28.38</b>	2838.00	<b>Fulminates, cyanates and thiocyanates.</b>
<b>28.39</b>		<b>Silicates; commercial alkali metal silicates.</b>
		- Of sodium :
	2839.11	-- Sodium metasilicates
	2839.19	-- Other
	2839.20	- Of potassium
	2839.90	- Other
<b>28.40</b>		<b>Borates; peroxoborates (perborates).</b>
		- Disodium tetraborate (refined borax) :
	2840.11	-- Anhydrous
	2840.19	-- Other
	2840.20	- Other borates
	2840.30	- Peroxoborates (perborates)
<b>28.41</b>		<b>Salts of oxometallic or peroxometallic acids.</b>
	2841.10	- Aluminates
	2841.20	- Chromates of zinc or of lead
	2841.30	- Sodium dichromate
	2841.50	- Other chromates and dichromates; peroxochromates
		- Manganites, manganates and permanganates :
	2841.61	-- Potassium permanganate
	2841.69	-- Other
	2841.70	- Molybdates
	2841.80	- Tungstates (wolframates)
	2841.90	- Other
<b>28.42</b>		<b>Other salts of inorganic acids or peroxyacids (including aluminosilicates whether or not chemically defined), other than azides.</b>
	2842.10	- Double or complex silicates, including aluminosilicates whether or not chemically defined
	2842.90	- Other
		<b>VI.- MISCELLANEOUS</b>
<b>28.43</b>		<b>Colloidal precious metals; inorganic or organic compounds of precious metals, whether or not chemically defined; amalgams of precious metals.</b>
	2843.10	- Colloidal precious metals

		- Silver compounds :
	2843.21	-- Silver nitrate
	2843.29	-- Other
	2843.30	- Gold compounds
	2843.90	- Other compounds; amalgams
<b>28.44</b>		<b>Radioactive chemical elements and radioactive isotopes (including the fissile or fertile chemical elements and isotopes) and their compounds; mixtures and residues containing these products.</b>
	2844.10	- Natural uranium and its compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing natural uranium or natural uranium compounds
	2844.20	- Uranium enriched in U 235 and its compounds; plutonium and its compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing uranium enriched in U 235, plutonium or compounds of these products
	2844.30	- Uranium depleted in U 235 and its compounds; thorium and its compounds; alloys, dispersions (including cermets), ceramic products and mixtures containing uranium depleted in U 235, thorium or compounds of these products
	2844.40	- Radioactive elements and isotopes and compounds other than those of subheading 2844.10, 2844.20 or 2844.30; alloys, dispersions (including cermets), ceramic products and mixtures containing these elements, isotopes or compounds; radioactive residues
	2844.50	- Spent (irradiated) fuel elements (cartridges) of nuclear reactors
<b>28.45</b>		<b>Isotopes other than those of heading 28.44; compounds, inorganic or organic, of such isotopes, whether or not chemically defined.</b>
	2845.10	- Heavy water (deuterium oxide)
	2845.90	- Other
<b>28.46</b>		<b>Compounds, inorganic or organic, of rare-earth metals, of yttrium or of scandium or of mixtures of these metals.</b>
	2846.10	- Cerium compounds
	2846.90	- Other
<b>28.47</b>	2847.00	<b>Hydrogen peroxide, whether or not solidified with urea.</b>
<b>28.48</b>	2848.00	<b>Phosphides, whether or not chemically defined, excluding ferrophosphorus.</b>
<b>28.49</b>		<b>Carbides, whether or not chemically defined.</b>
	2849.10	- Of calcium
	2849.20	- Of silicon
	2849.90	- Other
<b>28.50</b>	2850.00	<b>Hydrides, nitrides, azides, silicides and borides, whether or not chemically defined, other than compounds which are also carbides of heading 28.49.</b>
<b>28.51</b>	2851.00	<b>Other inorganic compounds (including distilled or conductivity water and water of similar purity); liquid air (whether or not rare gases have been removed); compressed air; amalgams, other than amalgams of precious metals.</b>