Chapter 79

Zinc and articles thereof

Subheading Note.

1.- In this Chapter the following expressions have the meanings hereby assigned to them :

(a) **Zinc, not alloyed**

Metal containing by weight at least 97.5 % of zinc.

(b) **Zinc alloys**

Metallic substances in which zinc predominates by weight over each of the other elements, provided that the total content by weight of such other elements exceeds 2.5 %.

(c) **Zinc dust**

Dust obtained by condensation of zinc vapour, consisting of spherical particles which are finer than zinc powders. At least 80 % by weight of the particles pass through a sieve with 63 micrometres (microns) mesh. It must contain at least 85 % by weight of metallic zinc.

GENERAL

This Chapter covers zinc and zinc alloys, and certain articles thereof.

Zinc is mainly extracted from the sulphide ore (zinc blende or sphalerite), though the carbonate and silicate ores (smithsonite, hemimorphite, etc.) are also used (see the Explanatory Note to heading 26.08).

In either case, the ore is first concentrated and is then roasted or calcined to produce zinc oxide (in the case of the sulphide and carbonate ores) or water-free zinc silicate (in the case of silicate ores). Zinc is extracted from these by thermal reduction or (except in the case of silicate ores) electrolysis.

(I) **Thermal reduction** is effected by heating the oxide or silicate with coke in closed retorts. The temperature is sufficient to vaporise the zinc which distils over into condensers where most of the metal is collected as “spelter”. This impure zinc may be used directly for galvanising, or may be refined by various methods.

Some impure metal is also deposited in the retort extensions as a very fine powder known as zinc dust or blue powder.

A modern modification of the process is based on the continuous reduction of zinc oxide and distillation of zinc in vertical retorts. This process gives very pure metal suitable for making die-casting alloys.

(II) **Electrolysis**. The zinc oxide is dissolved in dilute sulphuric acid. This solution of zinc sulphate is carefully purified to remove cadmium, iron, copper, etc., and is then electrolysed to produce a very pure zinc.

Zinc is also obtained by resmelting zinc waste and scrap.

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Zinc is a bluish-white metal which can be rolled, drawn, stamped, extruded, etc., at suitable temperatures, and it can readily be cast. It is resistant to atmospheric corrosion and is therefore used in building (e.g., for roofing), and to form protective coverings for other metals, especially iron and steel (e.g., by hot-dip galvanising, electro-deposition, sherardising, painting or spraying).

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Zinc is also used in the manufacture of alloys; many of these (e.g., brass), contain a predominance of other metals, but the following are the **principal zinc alloys** which may fall in this Chapter under the provisions of Note 5 to Section XV :

(1) Zinc-aluminium alloys, usually with added copper or magnesium used for die-casting, especially for automobile parts (carburettor bodies, radiator grilles, dash-boards, etc.), cycle parts (pedals, dynamo cases, etc.), radio parts, refrigerator parts, etc. Alloys of the same metals are used to produce sheets stronger than ordinary zinc, press-tools, and as cathodic protection anodes (sacrificial anodes) for protecting pipelines, condensers, etc., against corrosion.

(2) Zinc-copper alloys (button metal alloys), for casting, stamping, etc. See Subheading Notes 1 (a) and 1 (b) concerning the distinction between zinc and zinc alloys.

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The Chapter covers :

(A) Spelter and unwrought zinc, and waste and scrap (headings 79.01 and 79.02).

(B) Zinc dust, powders and flakes (heading 79.03).

(C) Products generally obtained by rolling, drawing or extruding the unwrought zinc of heading 79.01 (headings 79.04 and 79.05).

(D) Tubes, pipes and fittings and the other articles of the residual heading 79.07 which covers all other zinc articles **other than** those covered by Note 1 to Section XV or included in **Chapter 82** or **83** or those more specifically covered elsewhere in the Nomenclature.

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Products and articles of zinc may be subjected to various treatments to improve the properties or appearance of the metal, etc. These treatments are generally those referred to at the end of the General Explanatory Note to Chapter 72, and do not affect the classification of the goods.

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The classification of **composite articles** is explained in the General Explanatory Note to Section XV.