81.01 - Tungsten (wolfram) and articles thereof, including waste and scrap.

8101.10 - Powders

- Other :

8101.94 - - Unwrought tungsten, including bars and rods obtained simply by sintering

8101.96 - - Wire

8101.97 - - Waste and scrap

8101.99 - - Other

Tungsten (wolfram) is mainly obtained from the ores wolframite (iron-manganese tungstate) and scheelite (calcium tungstate). The ores are converted into the oxide, which is then reduced by hydrogen in an electric furnace or by aluminium or carbon in a high temperature crucible. The powdered metal so obtained is compressed into blocks or bars which are sintered in an atmosphere of hydrogen in an electric furnace. The compact sintered bars are then hammered mechanically, and finally rolled or drawn into sheets, bars of smaller section or wire.

Tungsten is a dense, steel-grey metal, with a high melting point. It is brittle, hard and has a high resistance to corrosion.

Tungsten is used in filaments for electric light bulbs and radio valves; elements for electric furnaces; anti-cathodes for X-ray tubes; electric contacts; non-magnetic springs for electrical measuring apparatus or watches; hairlines for telescope lenses; it is also used as welding electrodes for hydrogen arc welding, etc.

The most important use of tungsten (usually as ferrrotungsten, see Chapter 72) is, however, in the preparation of special steels. It is also used in the preparation of tungsten carbide.

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The **principal tungsten alloys** which may fall in the Chapter in accordance with Note 5 to Section XV are prepared by sintering. They include :

(1) Tungsten-copper alloys (e.g., for electric contacts).

(2) Tungsten-nickel-copper alloys used in the manufacture of X-ray screens, certain aircraft parts, etc.

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Tungsten (wolfram) falls in this heading whether in the form of :

(A) **Powders**;

(B) **Unwrought metal**, e.g., in blocks, ingots, sintered bars and rods, or as waste and scrap (for the latter see the Explanatory Note to heading 72.04);

(C) **Wrought metal**, e.g., rolled or drawn bars; profiles, plates and sheets, strip or wire;

(D) **Manufactures** not covered by Note 1 to Section XV or included in **Chapter 82** or **83** or more specifically covered elsewhere in the Nomenclature. Most tungsten articles, **except** springs, are in fact classified in **Section XVI** or **XVII**; for example, a complete electric contact falls in **Chapter 85**, whereas a tungsten plate used to make such a contact would fall in this heading.

The heading **excludes** tungsten carbide, e.g., as used in the manufacture of the working tips and edges of cutting tools or dies. This carbide is classified as follows :

(a) Unmixed powder in **heading 28.49**.

(b) Prepared but non-sintered mixtures (e.g., mixed with carbides of molybdenum or tantalum, with or without a binding agent) in **heading 38.24**.

(c) Plates, sticks, tips and the like for tools, sintered but unmounted, in **heading 82.09** (see corresponding Explanatory Note).