

Material Safety Datasheet

Trade Name	: Beryllium Copper (All Alloys)		
Type of Product	: Age-hardenable copper alloy with high hardness and moderate electrical and thermal conductivity..		
Nominal Composition	C-17500 : Cobalt 2.5 % Beryllium 0.4 % Copper Balance	C-17510 Nickel : 1.8% Beryllium 0.3 % Copper Balance	C-17200 Cobalt 0.2 % Beryllium 2.0 % Copper Balance
Physical Characteristics	: Copper coloured metal. Softening temperature 500° C.		
Occupational Exposure Limits (1987)	: Long-term Exposure limit (8 hour TWA value) Mg/m ³		
Co & Cmpds	: 0.1		
Cu Fume	: 0.2		
Cu Dust	: 1		
Beryllium	: 0.002		
Nickel	: 1.0		
Health Hazards General	<p>There is a potential health hazard associated with beryllium and certain of its compounds where inhalation of respirable particles may occur. Such particles may be found as debris from specific metal removal processes or as fumes associated with high temperature process during manufacture of the alloys. Prolonged heating near or above the melting point of the alloy may result in liberation of metal or oxide fumes which may be hazardous to health.</p> <p>There are no toxic effect fro physical contact with the alloy, but cuts and abrasions should receive prompt treatment. Any splinters or particles of metal should be removed immediately fro any wound to avoid delays in healing. Beryllium containing splinters remaining below the skin may induce granulomas if not removed.</p> <p>There is no evidence of toxic effect from beryllium containing alloys taken orally. As a general precaution it is advised that hands be washed after contact and prior or eating.</p>		

There is no evidence of any toxic effects associated with the use of this metal as a resistance welding electrode material.

- Inhalation** : Copper fume, if excessive, may cause irritation of the upper respiratory tract, metallic taste in the mouth and metal fume fever. Metal fume fever results in influenza-like symptoms, which may not become apparent for up to 10 hours. Symptoms usually subside after 24 hours, with rest and removal from exposure.
- Beryllium metal fumes or beryllium oxide may cause lung disorder. Exposure to beryllium containing fumes and dust should be reduced to as low a level as possible.
- First Aid** : Inhalation – remove from exposure and allow to rest. Seek medical advice.
- Skin – clean cuts and abrasions with clean water. Remove all metal splinters and debris embedded in skin.
- Eye – Not Applicable
- Ingestion – Not Applicable
- Precautionary Measures** : Tests to determine whether or not the OELs are being exceeded can be carried out by sampling the workplace air using personal or static samples. Normal analytical techniques, such as atomic absorption spectrometry can be used to determine copper and chromium. If results show that airborne concentrations are exceeding TLVs adequate local exhaust ventilation should be installed, or workers provided with respiratory protection.
- General Metal Removal Processes** : All Metal removing operations such as grinding, milling, turning etc should be carried out under a copious flow of lubricant and an efficient exhaust system must be coupled with grinding heads. Electro-chemical machining should be carried out in a well-ventilated area. In the case of spark erosion, suitable extraction equipment must be installed and efficiently operated.
- Joining** : Potential hazards increase as the process temperature increases. Soldering, brazing and other processes, where melting of the alloy does not occur, require no special precautions although it is recommended that, when brazing, the components be covered in flux to suppress the formation of a friable oxide. Fusion welding processes, i.e. those which involve melting of the parent material, represent a major hazard and should only be carried out in circumstances where the potential hazards can be effectively and safely managed.

- Heat Treatment : Beryllium Copper comes as standard in the fully age-hardened condition and requires no further heat treatment.
- Cleaning : Cleaning after brazing, to remove oxidation, is best carried out by pickling as this avoids the possibility of particles becoming airborne as would occur with mechanical removal methods.
- Storage : Keep away from acids.
- Reactivity : This alloy is slowly attacked in the cold by concentrated hydrochloric acid and by dilute sulphuric acid liberating flammable hydrogen gas. The alloy is readily attacked by dilute nitric acid liberating toxic gases of nitrogen oxides and by warm concentrated sulphuric acid liberating toxic sulphur dioxide gas.
- Waste Disposal : All scrap and wastes containing this material such as cutting fluid should be segregated and separately stored in marked containers, Re-melting of scrap in conventional melting equipment represents a health risk. Disposal of this material should be carried out according to regulations and any persons involved in disposal should be formerly informed that the scrap/ waste is beryllium containing.
- Note : For further advice or if circumstances do not allow safe and effective management of the hazards presented by this material, please contact our technical department. Our staff will be pleased to advise the best beryllium free alternative material to meet the application.