

SILVER, COPPER, CADMIUM, ZINC

MATERIAL SAFETY DATA SHEET

02/08/00

MSDS PROVIDED BY:

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SECTION 1: Product Identification

Trade Names/Synonym: USA 45%, USA 50%, USA 35%, USA 35 CF,, USA 30%, USA 50N, USA 40 NFC, USA 45 CF, USA 50CF, USA 56 CF, USA 72 CF, USA 54 CF, USA 30CF, USA 40 CF

Chemical Name: Silver, Copper, Cadmium, Zinc

Cas Number: 7440-22-4

Chemical Family: Metal alloys

Chemical Formula: Ag-Cu-Zn-Cd

*This material is in compliance with the Toxic Substances Control Act

SECTION 2: Summary of Hazards

Exposure to fume or dust may cause metal fume fever, conjunctivitis, skin discoloration, respiratory illness, or general systematic effects associated with fume exposure.

Warning! Cadmium is a human carcinogen: NTP-2, IARC-2A, NIOSH-X

SECTION 3: Hazardous Components

Exposure limits listed are for Copper fume. Exposure limits fro Copper dust are: PEL=1 mg/m³, TLV=1 mg/m³. Exposure listed for zinc are given as Zinc Oxide fume. Exposure limits for Zinc Oxide dust are: PEL=10 mg/m³, TLV=10 mg/m³

EXPOSURE LIMITS

Name	Cas No.	%	PEL	TLV	Other
Silver	7440-22-4	25-50	10 ug/m ³	100 ug/m ³	10 ug/m ³
Cadmium	7440-43-9	2-24	5 ug/m ³	5 ug/m ³	5 ug/m ³
Copper	7440-50-8	15-35	0.1 mg/m ³	0.2 mg/m ³	0.1 mg/m ³
Zinc	7440-66-6	15.5-27.5	5 mg/m ³	5 mg/m ³	10 mg/m ³

Carcinogenicity

Designated By:

NPT-2

IARC-2A

OSHA

Other NIOSH-X

SECTION 4: Chemical and Physical Properties

Boiling Point:

NL

Vapor Pressure:

N/A

Melting Point:

1200F

Vapor Density:

N/A

Sol. In Water:

Insoluble

Specific Gravity:

7.0-10.0

pH:

N/A

Evaporation Rate:

N/A

Appearance / Odor:

White to yellowish metal, no odor

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SECTION 5: Health Hazard Data & First Aid Procedures

Health Hazard data should be recognized if the material is to be ground or heated as to liberate dust or fume.

<u>Chemical Name</u>	<u>Toxicity Data</u>		
Silver	none	none	
Cadmium	rat-ori	225 mg/kg	none
Copper	none	none	
Zinc	none	none	

EYE CONTACT: Dust or fume may cause irritation or conjunctivitis. Flush thoroughly with water. If irritation persists, seek medical attention.

SKIN CONTACT: Repeated or prolonged skin contact may cause dermatitis and defatting. In case of contact, wash skin with soap and water. Call a physician if symptoms occur.

SKIN ABSORPTION: Fume may be absorbed through the skin, mucous membranes, and eyes. Metal Fume Fever may occur. Remove from exposure. Wash thoroughly with water. If condition persists, seek medical attention.

INHALATION: Excessive or prolonged inhalation may cause metal fume fever. Call a physician if symptoms occur.

INGESTION: Ingestion of fume or dust is mildly toxic. May cause nausea, vomiting or gastrointestinal distress. If conditions persist seek medical attention.

CHRONIC EFFECTS OF OVEREXPOSURE: Exposure to fume may cause chronic respiratory illness. This product contains Cadmium which is a probable human carcinogen: IARC-2A, NTP-2, EPA-B1, NIOSH-X.

OTHER HEALTH EFFECTS: Inhalation or ingestion of dust or fume may cause loss of appetite, anemia, malaise, insomnia, headache, muscle and joint pains, tremors and muscle weakness. High and prolonged exposure can damage the kidneys, brain, and nervous system.

Medical conditions which may be aggravated by exposure to this product include: Conjunctivitis of the eye, dermatitis of the skin, asthma and respiratory diseases.

SECTION 6: Exposure Control Measures

Exposure control measure should be adhered to if the material is to be ground or heated as to liberated dust or fumes.

EYE PROTECTION: Safety Glasses are required. Welding goggles for welding operations.

PROTECTIVE GLOVES: Leather gloves for welding or brazing.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure limits listed in Section 3 by using engineering controls. If no feasible, use NIOSH approved respiratory protection according to measured exposure levels.

OTHER PROTECTION: If repeated or prolonged skin contact or contamination is likely, protective clothing should be worn.

VENTILATION: Provide local exhaust ventilation at the source of dust and fumes to maintain airborne levels below exposure limited in Section 3. Refer to "Industrial Ventilation" by ACGIH for manual of recommended practices.

PERSONAL HYGIENE/WORK PRACTICES: Establish good personal hygiene and work practices. Always wash hands and face before eating, drinking, or smoking. Provide safety shower and eye wash station in work area.

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SECTION 7: Fire and Explosion Hazard Data

NON-FLAMMABLE:

FLASH POINT

(METHOD USED: none

FLAMMABLE LIMITS: Lower: N/A Upper: N/A

EXTINGUISHING MEDIA: Metal does not burn. Use extinguishing media that is compatible to surrounding material.

FIRE FIGHTING

INSTRUCTIONS: Evacuate enclosed and surrounding areas. If smoke and fumes cannot be avoided, use proximity suit and self-contained breathing apparatus. Use water spray to cool containers and disperse vapors. Keep spills away from sources of ignition.

UNUSUAL FIRE AND

EXPLOSION HAZARDS: Prevent high dust concentrations in the atmosphere against electrostatic charges which could cause an explosion.

SECTION 8 Reactivity Data

STABILITY: This product is stable.

INCOMPATIBILITY: SILVER-acetylene and ethlenimine form explosive compounds with silver. If silver is treated with nitric acid in the presence of ethyl alcohol, silver fulminate can be formed which can be detonated. Fine powder and hydrogen peroxide solutions may explode. Incompatible with oxalic and tartaric acid. Bromoazide explodes on contact with silver foil.

COPPER-ammonium nitrate, bromates, iodates, chlorates, ethylen oxide, hydrazoic acid, potassium oxide, dimethyl sulfoxide + trichloroacetic, hydrogen peroxide, sodium peroxide, sodium azide, sulfuric acid, hydrogen sulfide + air, lead azide, and acetylenic compounds. Copper ignites on contact with chlorine, fluorine, chlorine trifluoride, and hydrazinium nitrate.

DECOMPOSITION: Metal fumes / oxides produced from overheating while melting or brazing can be toxic.

HAZARDOUS

POLYMERIZATION: Will not undergo hazardous polymerization.

SECTION 9 Environmental & Disposal Information

GENERAL: CERCLA/SARA requires notification to the appropriate Federal state and local authorities of releases of hazardous or extremely hazardous quantities equal to or greater than the Reportable Quantities (RQ's) in 40 CFR 302.4 and 40 CFR 355.

The Reportable Quantities are listed in section 12. The product has reclamation value.

SARA Title requires submissions of annual reports of releases of toxic chemicals that appear under statute are listed in Section 12.

SECTION 10: Precautions for Safe Handling, Storage and Use

Use personal protective equipment when working with this product.

SECTION 11: Shipping Information

Not regulated for Transportation Purposes.

SECTION 12: Additional Information

CERCLA Reporting: Silver RQ = 1000#

SARA Title 313 Reporting: Silver and its compounds

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Washington Alloy requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers of the product hazards and safety information. The data contained herein is reliable, but no expressed or implied warranty is made with regard to the accuracy of such product in combination with any other product. The conditions or methods of handling, storage, use and disposal of this product are beyond our control and may be beyond our responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.