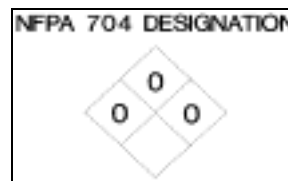


MATERIAL SAFETY DATA SHEET MSDS 4.114



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SECTION I

CHEMICAL FAMILY: Metal Alloy
CHEMICAL NAME: Silver - Copper - Nickel
TRADE NAME: ELKONIUM® 1

SECTION II - INGREDIENTS AND HAZARDS

INGREDIENT		CAS REGISTRY #	%	ACGIH TLV/TWA mg/m ³	OSHA PEL/TWA mg/m ³
Silver	(Ag)	7440-22-4	75	0.1	0.01
Copper	(Cu)	7440-50-8	24.5	1	1
Nickel	(Ni)	7440-02-0	0.5	0.05	1

Silver, copper and nickel are subject to the reporting requirements of Section 313, SARA Title III.

SECTION III - PHYSICAL DATA

MELTING POINT °C: (≈ 780)
VAPOR PRESSURE AT ROOM TEMPERATURE: N/A
VAPOR DENSITY: N/A
SOLUBILITY IN WATER: Insoluble
PERCENT VOLATILE (BY VOLUME %): N/A
SPECIFIC GRAVITY (g/cc): 10.0
APPEARANCE: Yellowish-white metal

SECTION IV - FIRE AND EXPLOSIVE DATA

FLASH POINT AND METHOD: N/A
AUTOIGNITION TEMPERATURE °C: N/A
FLAMMABILITY LIMITS IN AIR: UPPER: N/A LOWER: N/A
EXTINGUISHING MEDIA: Type C or type ABC extinguisher
FIRE FIGHTING PROCEDURES: Use self contained breathing apparatus with a full face piece operated in a pressure demand or positive pressure mode.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
If this material is reduced to powder form, caution must be used to prevent fire or explosion. To extinguish a metal powder fire use dry graphite or other class "D" fire extinguishing powder. Do NOT use water.

References: *Threshold Limit Values and Biological Exposure Indices*, ACGIH, 1992-1993
Code of Federal Regulations - Labor #29, Rev. July 1, 1990
Pocket Guide to Chemical Hazards, NIOSH, 1990
Chemical Regulatory Cross Reference, 3rd Edition, J. J. Keller, 1992 (w updates)
"NFPA Hazard Rating Index Chart", Labor Safety Supply Co., 1987
Fire Protection Guide on Hazardous Materials, 9th Edition, Quincy, MA, 1986
Registry of Toxic Effects of Chemical Substances, NIOSH, 1985-1986
Occupational Health Guidelines for Chemical Hazards, NIOSH/OSHA, 1981
Dangerous Properties of Industrial Materials, 5th Edition, Van Nostrand Reinhold Co., 1979

SECTION V - REACTIVITY DATA

STABILITY: Stable HAZARDOUS POLYMERIZATION: Will not occur
 HAZARDOUS DECOMPOSITION PRODUCTS: Melting may generate harmful fumes.
 INCOMPATIBILITY AND CONDITIONS TO AVOID:
 Stable in normal environments. Reacts with acetylene, ammonia,
 hydrogen peroxide, bromoazide, chlorine, trifluoride, ethyleneimine,
 oxalic acid, tartaric acid.

SECTION VI - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

Silver: Inhalation - argyria, a blue-gray discoloration of the skin,
 mucous membrane and eyes may result. Ingestion - generalized
 argyria may result. Skin - localized argyria from silver
 particles imbedded during handling. Eyes - severe irritation
 or conjunctivitis may occur. Health hazards - discoloration
 may become permanent.

Copper: Inhalation - cough, chills, general malaise, kidney
 disfunction. Ingestion - liver disfunction. Eyes and skin -
 irritant and/or discoloring.
 Health hazards: Chronic lung, liver or kidney damage. May
 aggravate or intensify symptoms or pre-existing anemia or
 pulmonary disease.

Nickel: Inhalation - lung irritant, coughing, shortness of breath,
 chest pain. Skin - rash and itching - "Nickel itch". Health
 hazards: Allergic dermatitis, pneumonitis.

CARCINOGENICITY:	NTP	IARC	OSHA
Silver	No	No	No
Copper	No	No	No
Nickel	Yes	Yes	Yes

EMERGENCY AND FIRST AID PROCEDURES:

Remove victim to fresh air. Flush skin and eyes with
 water. For inhalation or ingestion, seek immediate
 medical assistance.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Scoop up large quantities. Use sweeping compound to
 remove the rest. Avoid creating airborne particles.

WASTE DISPOSAL METHOD: Silver-copper-nickel alloys can be recycled.

STORING AND HANDLING: N/A

OTHER PRECAUTIONS: Avoid generating dust or fumes.

SECTION VIII - SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION: NIOSH approved cartridge respirator.

VENTILATION: Ventilate operations when producing dust or fumes.

PROTECTIVE GLOVES: Recommend hand protection when handling metals for
 prevention of cuts from slivers and edges.

EYE PROTECTION: Wear safety glasses or goggles, if fumes, chips or dust
 are generated.

The information contained herein is believed to be correct, but no guarantee or
 warranty with respect to accuracy, completeness, or results is implied and no
 liability is assumed. Rev. November 15, 1993