

MATERIAL SAFETY DATA SHEET

MSDS 4.410



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SECTION I

CHEMICAL FAMILY: Metal Alloy
CHEMICAL NAME: Palladium - Silver - Nickel alloy
TRADE NAME: ELKONIUM® 41

SECTION II - INGREDIENTS AND HAZARDS

INGREDIENT		CAS REGISTRY #	%	ACGIH TLV/TWA mg/m ³	OSHA PEL/TWA mg/m ³
Palladium	(Pd)	7440-05-3	72	N/A	N/A
Silver	(Ag)	7440-22-4	26	0.1	0.01
Nickel	(Ni)	7440-02-0	2	0.05	0.002

Silver and Nickel are subject to reporting requirements of Section 313, SARA Title III.

SECTION III - PHYSICAL DATA

MELTING POINT °C: (≈ 1190)
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): 11.5
APPEARANCE: Grey 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.. Palladium can react violently with Al, hydrogen with isopropyl alcohol, OF₂, and S.

SECTION VI - HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:

Palladium: No specific toxicological information available in cited references. Any metallic dust or fumes may cause eye, skin, or respiratory tract irritation.
 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.
 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
Palladium	No	No	No
Silver	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: Precious metal 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.

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