Modern Orthodontics

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2024 Gobind Nagar
Circuit House Road,
Ludhiana, 141001,INDIA

MATERIAL SAFETY DATA SHEET
BRAZE FOR BASES

Document Number: MSDS-058	**Revision Date**: Jan 1,2015	**Material Type**: Alloy 18-550
Revision: 0	**Number of Pages**: 3	

1–PRODUCT IDENTIFICATION

Product: Alloy 18-550
Product Code: 18-550
Chemical Family: Precious metal brazing alloy
Chemical Formula: Alloy of silver, palladium, copper, and nickel.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

2–HAZARDOUS CHEMICAL COMPONENTS

Component – Copper:
CAS Number: 7440-50-8
OSHA PELs: 0.1 mg/m^3 (fume).
1 mg/m^3 TWA (dusts and mists)
Percent of Mixture: 29.0 to 31.0
ACGIH TLVs: 0.2 mg/m^3 TWA (fume); 1 mg/m^3 TWA (dusts and mists)

Component – Nickel:
CAS Number: 7440-02-0
OSHA PEL: 1 mg/m^3 TWA
Percent of Mixture: 4.5 to 5.5
ACGIH TLV: 1 mg/m^3 TWA

Component – Palladium:
CAS Number: 7440-05-3
No OSHA PEL(s) or ACGIH TLV(s)
Percent of Mixture: 9.0 to 11.0

Component: Silver:
CAS Number: 7440-22-4
OSHA PEL: 0.01 mg/m^3 TWA
Percent of Mixture:54.0 to 56.0
ACGIH TLV: 0.1 mg/m^3 TWA (metal)

3–PHYSICAL DATA

Vapor Pressure: Not applicable
Vapor Density (Air=1): Not applicable
Solubility in Water: Insoluble
Percent Volatiles: Not applicable
Appearance: Odorless white metal in form of wire, rod, strip, grain, or atomized powder.

4–FIRE FIGHITNG AND EXPLOSION DATA

Fire and Explosion Hazards: This product may react vigorously or ignite when exposed to incompatible materials (see Section #6). If present in a fire or explosion, it may emit fumes of the constituent metals and/or metal oxides.

Extinguishing Media: Use dry chemical. Do not use water.
Special Fire Fighting Instructions: If fighting a fire in which this product is present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

5–EXPOSURE EFFECTS AND FIRST AID

Route of Exposure - Inhalation: Inhalation of the components of this product is not known to present a significant risk to health when used according to instructions and with appropriate protective measures (see Section 8). Inhalation of components has been reported to cause one or more of the following symptoms and/or effects upon excessively high or prolonged exposure:

SILVER: Chronic exposure may produce argyria, a permanent blue-gray discoloration of the skin, eyes, mucous membranes, and respiratory tract.

COPPER: Acute exposure may cause respiratory tract irritation, fever, muscle ache, chills, cough, weakness, and a metallic taste. Chronic exposure may damage the liver, kidney, spleen, pancreas, and brain.

NICKEL: Acute exposure to nickel may cause headache, nausea, vertigo, asthma, and pulmonary edema. Chronic exposure may increase the risk of cancer to the nasopharynx, lungs, prostate, and kidney.

PALLADIUM: No significant acute or chronic effects are known from inhalation exposure to palladium metal.

First Aid – Inhalation: If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.
Route of Exposure – Skin: Skin contact with this product, particularly in finely-divided forms, may cause irritation, discoloration, and /or allergic reaction.
First Aid – Skin: Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary.
Rout of Exposure – Eyes: Eye contact with finely-divided forms of the product may produce localized irritation, argyria, and/or conjunctivitis.
First Aid – Eyes: Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

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Route of Exposure – Ingestion: Ingestion of this product in finely-divided forms may cause gastrointestinal irritation, abdominal pain, and cramps. Long-term chronic ingestion may damage the liver, kidneys, and musculoskeletal and central nervous systems.
First Aid – Ingestion: If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance.

Miscellaneous Toxicological Information:
Carcinogenicity: Nickel is a classified as a potential human carcinogen by the following organizations (with respective subclassifications): (1) IARC (Group 2B); NTP (Group 2B). None of the other components of this product are classified as potential or demonstrated carcinogens by the IARC, NTP, or OSHA.
Genetic/Reproductive Effects: Nickel has produced fetotoxic and teratogenic effects in animal studies, and mutagenic responses in mammalian cell cultures.
Health Conditions Aggravated by Exposure: Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation exposure, particularly as fume. Chronic exposure by inhalation and/or ingestion may aggravate pre-existing diseases of the liver, kidneys, gastrointestinal system, and nervous system.

6–REACTIVITY AND POLYMERIZATION
Conditions to Avoid (Stability): Stable at room temperature. Silver and copper can form unstable acetylides upon contact with acetylene gas.
Incompatible Materials: Strong oxidizers; Se; Te; Mg; chlorates; NH3; HNO3; azides, ethanol; ethylene imine; C1F3; inorganic and organic peroxides; peroxyformic acid; chlorine and fluorine; permonosulfuric acid; CrO3; Mn and Ca chlorides; CS2; hydrazine mononitrate; nitrobenzene; Fe(CO)5; seleninyl bromide.
Hazardous Decomposition Products: Heating to elevated temperatures may liberate metal/metal oxide fume. Hazardous polymerization will not occur.

7–SPILL, LEAK, & DISPOSAL PROCEDURES
Steps to be Taken in the Event of Spills, Leaks, or Release: If a finely-divided form of product is spilled, clean up spillage so as to minimize dispersion of dust. Wet sweeping or vacuuming using HEPA filtration are recommended.

Waste Disposal Methods: Consult the manufacturer for disposition of unused or unusable product.

SARA Title III Notifications and Information:
SARA Title III Hazard Classes: Acute Health Hazard; Chronic Health Hazard.
SARA Title III – Section 313 Supplier Notification: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS#	Chemical Name	Percent of Mixture
7440-50-8	Copper	29.0 - 31.0
7440-02-0	Nickel	4.5 - 5.5
7440-22-4	Silver	54.0 – 56.0

This information must be included on all MSDS that are copied and distributed for this material.

8–SPECIAL PROTECTIVE MEASURES
Ventilation: Use appropriate ventilation (e.g., dilution, local exhaust) adequate to maintain concentrations of all components and their decomposition byproducts to within their respective OSHA PELs or other applicable standards.
Eye Protection: Wear eye protection (safety glasses, goggles) adequate to prevent eye contact with finely-divided forms of product and eye injury from the hazards of brazing. Plastic-frame spectacles with side shields and filter lenses (shade #3 or #4) are recommended.
Skin Protection: Wear appropriate protective gloves and clothing to prevent skin injuries from the hazards of brazing and/or for prolonged or repeated contact with finely-divided forms of product. Avoid flammable fabrics.
Respiratory Protection: If an exposure level exceeds an OSHA PEL(s) or other applicable standard, use a NIOSH-approved respirator having a configuration (class, type of facepiece, filter media, assigned protection factor, etc.) appropriate to the concentration of the contaminant(s) generated. For guidance on selection and use of respiratory protection, consult American National Standard Z88.2. (ANSI, New York, NY 10036 USA).

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Work/Hygienic Practices: To avoid ingestion, wash hands and face before eating, drinking, or using cosmetics or tobacco.

9–SPECIAL PRECAUTIONS – STORAGE & HANDLING

Storage & Handling Conditions: Do not store in proximity to incompatible materials (see Section #6)

10–SHIPPING INFORMATION

Hazard Class: Shipment not controlled by USDOT/IATA/ICAO/IMO regulations.

11–DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, MO extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).