

1. Identification

Product identifier	Bismuth Alloys		
Other means of identification			
SDS number	2		
Product code	C955400Bi, C89320, C89325, C89510, C89360, C89510, C89520, C89530, C89831, C89833, C89835, C89837, Bi-Alloy, CuSn6Bi5, Se-Bi-Alloy, 2217-121, 2217-123		
Recommended use	Manufacturing		
Recommended restrictions	Not assigned.		
Manufacturer / Importer / Supplier / Distributor information			
Address	131 Myoma Road (PO Box 816) Mars, PA 16046		
Telephone	1-800-626-7071		
E-mail	dpl@concast.com or adk@concast.com		
Contact person	Dominic LeMaire or Andy Krowsoski		
Emergency phone number	1-800-424-9300 Chemtrec (24-hrs)		
Company name	Concast Metal Products Company		

2. Hazard(s) identification

Physical hazards	Not classified.		
Health hazards	Sensitization, skin	Category 1	
	Carcinogenicity	Category 2	
	Specific target organ toxicity, repeated exposure	Category 2 (Lung)	
OSHA hazard(s)	Not classified.		
Label elements			
Hazard symbol			
Signal word	Warning		
Hazard statement	May cause an allergic skin reaction. Suspected of causing cancer. May cause damage to organs (Lung) through prolonged or repeated exposure by inhalation.		
Precautionary statement			
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing. Do not breathe fumes and dusts.		
Response	If on skin: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Specific treatment (see this label). Wash contaminated clothing before reuse. If exposed or concerned: Get medical advice/attention. Get medical advice/attention if you feel unwell.		
Storage	Store locked up.		
Disposal	Dispose of contents/container to a facility that has permission of disposing the industrial waste.		
Hazard(s) not otherwise classified (HNOC)	Not classified.		

3. Composition/information on ingredients

Mixture

Hazardous components	Chemical name	Common name and synonyms	CAS number	%
	Copper		7440-50-8	85-91
	Tin		7440-31-5	4-7.5

Hazardous components	Chemical name	Common name and synonyms	CAS number	%
	Bismuth		7440-69-9	0.5-6
	Selenium		7782-49-2	0-1.1
	Nickel		7440-02-0	0-1

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The alloy contains additional alloying elements at concentrations below disclosure requirements. At temperatures above the melting point the alloys may liberate fumes containing oxides of alloying elements.

4. First-aid measures

Inhalation	In case of exposure to fumes or particulates: Move to fresh air. Get medical attention if discomfort persists.
Skin contact	Contact with dust: Wash skin with soap and water. In case of allergic reaction or other skin disorders: Seek medical attention and bring along these instructions. In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.
Eye contact	Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.
Ingestion	Rinse mouth thoroughly if dust is ingested. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.
Most important symptoms/effects, acute and delayed	May cause skin and eye irritation. May cause irritation to mucous membranes. Cough. Shortness of breath. Wheezing. Sensitization.
Indication of immediate medical attention and special treatment needed	Treat symptomatically. Symptoms may be delayed.
General information	Get medical attention if any discomfort develops. Seek medical attention for all burns, regardless how minor they may seem. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Special powder against metal fires. Dry sand.
Unsuitable extinguishing media	Do not use water or halogenated extinguishing media. Do not use water on molten metal: Explosion hazard could result.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air. In a fire, nickel may form nickel carbonyl, a highly toxic substance and known carcinogen.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
Fire-fighting equipment/instructions	Move containers from fire area if you can do it without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.
Methods and materials for containment and cleaning up	Avoid dust formation. Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal. Collect dust using a vacuum cleaner equipped with HEPA filter. The vacuum cleaner should be explosion-proofed. If not possible, gently moisten dust before it is collected with shovel, broom or the like. This material and its container must be disposed of as hazardous waste.
Environmental precautions	Avoid release to the environment. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts of metal oxides. Provide adequate ventilation. Avoid contact with sharp edges and hot surfaces. Avoid inhalation of dust and contact with skin and eyes. Avoid generation and spreading of dust and fumes. Avoid contact with hot or molten material. Dust clouds may be explosive under certain conditions. Take precautionary measures against static discharges when there is a risk of dust explosion. Use explosion-proof electrical equipment if airborne dust levels are high. To prevent and minimize fire or explosion risk from static accumulation and discharge, effectively bond and/or ground product transfer system. Wear appropriate personal protective equipment. Do not use water on molten metal. Do not eat, drink or smoke when using the product. Keep the workplace clean. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep dry. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Copper (CAS 7440-50-8)	PEL	1 mg/m ³ 0.1 mg/m ³	Dust and mist. Fume.
Nickel (CAS 7440-02-0)	PEL	1 mg/m ³	
Selenium (CAS 7782-49-2)	PEL	0.2 mg/m ³	
Tin (CAS 7440-31-5)	PEL	2 mg/m ³	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Copper (CAS 7440-50-8)	TWA	1 mg/m ³ 0.2 mg/m ³	Dust and mist. Fume.
Nickel (CAS 7440-02-0)	TWA	1.5 mg/m ³	Inhalable fraction.
Selenium (CAS 7782-49-2)	TWA	0.2 mg/m ³	
Tin (CAS 7440-31-5)	TWA	2 mg/m ³	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Copper (CAS 7440-50-8)	REL	1 mg/m ³	Dust and mist.
Nickel (CAS 7440-02-0)	REL	0.015 mg/m ³	
Selenium (CAS 7782-49-2)	REL	0.2 mg/m ³	
Tin (CAS 7440-31-5)	REL	2 mg/m ³	

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Follow standard monitoring procedures.

Appropriate engineering controls

Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Ventilate as needed to control airborne dust. Use explosion-proof ventilation equipment if airborne dust levels are high. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing etc., in order to eliminate explosion hazards.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear dust-resistant safety goggles where there is danger of eye contact. In addition to safety glasses or goggles, a welding helmet with appropriate shaded shield is required during welding, burning, or brazing. A face shield is recommended, in addition to safety glasses or goggles, during sawing, grinding, or machining.

Skin protection

Hand protection

Wear suitable protective gloves to prevent cuts and abrasions. When material is heated, wear gloves to protect against thermal burns. Suitable gloves can be recommended by the glove supplier.

Other

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use. Seek advice from local supervisor.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated uniforms should be laundered separately from other clothing to prevent potential cross-contamination. If possible, an industrial laundry service should be used to eliminate the possibility of contaminating the home environment. Handle in accordance with good industrial hygiene and safety practices. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance	Shapes, Solids, Tubes & Turnings.
Physical state	Solid.
Form	Shapes, Solids, Tubes & Turnings.
Color	Yellow to red.
Odor	None.
Odor threshold	Not available.
pH	Unknown.
Melting point/freezing point	1725.8 °F (941 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	0.313 - 0.323 lb/in³

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Stable at normal conditions. Massive metal is stable and non reactive under normal conditions of use, storage and transport.
Possibility of hazardous reactions	Hazardous polymerization does not occur. Hot molten material will react violently with water resulting in spattering and fuming.
Conditions to avoid	Contact with incompatible materials. Contact with acids will release flammable hydrogen gas. Avoid dust formation. Dust clouds may be explosive under certain conditions.
Incompatible materials	Acids. Ammonium nitrate. Fluoride. Halogens. Nitrates. Phosphorus. Strong oxidizing agents. Sulfur.
Hazardous decomposition products	Welding, burning, sawing, brazing, grinding or machining operations may generate dusts and fumes of metal oxides. Phosphorus oxides. Selenium/selenium oxides.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Not relevant, due to the form of the product. However, ingestion of dusts generated during working operations may cause nausea and vomiting.
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Inhalation	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract. In sensitized individuals, exposure causes an asthma-like attack, with wheezing, bronchospasm, and dyspnea.
Skin contact	May cause an allergic skin reaction. Hot or molten material may produce thermal burns. Workers allergic to nickel may develop eczema or rashes. Acute exposure to cobalt metal, dust, and fume may cause irritation of skin and eyes. In sensitized individuals, exposure causes an asthma-like attack, with wheezing, bronchospasm, and dyspnea.
Eye contact	Molten material will produce thermal burns. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
Symptoms related to the physical, chemical and toxicological characteristics	May cause irritation to mucous membranes. May cause skin and eye irritation. Coughing. Wheezing. Shortness of breath. Sensitization.
Information on toxicological effects	
Acute toxicity	High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. Acute exposure to dust, and fume may cause irritation of skin and eyes. In sensitized individuals, exposure causes an asthma-like attack, with wheezing, bronchospasm, and dyspnea.
Skin corrosion/irritation	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Hot or molten material may produce thermal burns.
Serious eye damage/eye irritation	Dust from machining operation in the eyes may cause irritation.
Respiratory sensitization	Not classified.
Skin sensitization	Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May cause sensitization by skin contact. Pre-existing skin conditions including dermatitis might be aggravated by exposure to this product.
Germ cell mutagenicity	No data available.
Carcinogenicity	Suspected of causing cancer.
IARC Monographs. Overall Evaluation of Carcinogenicity	
Nickel (CAS 7440-02-0)	1 Carcinogenic to humans.
Selenium (CAS 7782-49-2)	3 Not classifiable as to carcinogenicity to humans.
NTP Report on Carcinogens	
Nickel (CAS 7440-02-0)	Known To Be Human Carcinogen. Reasonably Anticipated to be a Human Carcinogen.
Reproductive toxicity	Nickel: Has shown teratogenic effects in laboratory animals.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Causes damage to the following organs through prolonged or repeated exposure: Lung.
Aspiration hazard	Not available.
Chronic effects	Harmful: danger of serious damage to health by prolonged exposure through inhalation. Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to benign pneumoconiosis (siderosis). Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Chronic inhalation of metallic oxide dust/fume may cause metal fume fever.
Further information	Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

12. Ecological information

Components	Species	Test Results
Selenium (CAS 7782-49-2)		
Aquatic		
Fish	LC50	Fathead minnow (Pimephales promelas) 0.94 - 1.2 mg/l, 96 hours
Persistence and degradability	The product is not biodegradable.	
Bioaccumulative potential	The product contains potentially bioaccumulating substances.	
Mobility in soil	Alloys in massive forms are not mobile in the environment.	
Mobility in general	Alloys in massive forms are not mobile in the environment.	
Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.	

13. Disposal considerations

Disposal instructions	This material and its container must be disposed of as hazardous waste. Dispose in accordance with all applicable regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	Z110: Inorganic compounds n.o.s.
Waste from residues / unused products	Recover and recycle, if practical. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.
Contaminated packaging	Not applicable.

14. Transport information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as a dangerous good.

IMDG

Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8)	LISTED
Nickel (CAS 7440-02-0)	LISTED
Selenium (CAS 7782-49-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical Yes

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Nickel (CAS 7440-02-0)
Selenium (CAS 7782-49-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

Copper (CAS 7440-50-8)
 Nickel (CAS 7440-02-0)
 Selenium (CAS 7782-49-2)
 Tin (CAS 7440-31-5)

US. New Jersey Worker and Community Right-to-Know Act

Copper (CAS 7440-50-8)	500 LBS
Nickel (CAS 7440-02-0)	500 LBS
Selenium (CAS 7782-49-2)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

Copper (CAS 7440-50-8)
 Nickel (CAS 7440-02-0)
 Selenium (CAS 7782-49-2)
 Tin (CAS 7440-31-5)

US. Rhode Island RTK

Copper (CAS 7440-50-8)
 Nickel (CAS 7440-02-0)
 Selenium (CAS 7782-49-2)
 Tin (CAS 7440-31-5)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Nickel (CAS 7440-02-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last version

Issue date	10-13-2012
Revision date	-
Version #	01
Further information	Not available.
References	HSDB® - Hazardous Substances Data Bank IARC Monographs. Overall Evaluation of Carcinogenicity National Toxicology Program (NTP) Report on Carcinogens ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

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