IBC Advanced Alloys

MATERIAL SAFETY DATA SHEET

Date Issued: April 13, 2010

1. PRODUCT AND COMPANY IDENTIFICATION: This material data sheet (MSDS) provides information on a specific group of manufactured metal products. As these metal alloy products share a common physical nature and constituents, the data presented are applicable to all alloys identified.

This MSDS identifies the following alloys: C17200, C17500, C17510.

MANUFACTURER:
IBC ADVANCED ALLOYS, INC. NONFERROUS DIVISION; 401 Arvin Road, P. O. Box 349; Franklin, IN 46131

ON THE WEB: www.ibcadvancedalloys.com

EMERGENCY PHONE NUMBERS: 1-800-423-5612

2. HAZARD IDENTIFICATION AND POTENTIAL HEALTH EFFECTS

ELEMENT	CAS#	OSHA / P. E. L. [1]
COPPER (Cu) [4]	**7440-50-8**	**1.0 dust & mists, 0.1 fume**

- Dust and fumes from melting, grinding and cutting may present a potential health hazard. Fumes may cause a metal fume fever with flu-like symptoms and damage or ulceration of the nasal passages. There may also be skin and hair discoloration. Dermatitis due to sensitization may occur in some individuals

IRON (Fe)	**7439-89-6**	**10 oxide fume**

- The inhalation of iron oxide fumes or dust may cause an apparent benign pneumoconiosis which is called siderosis. Shortness of breath and coughing are common.

NICKEL (Ni) [4] [5]	**7440-02-0**	**1 nickel metal**

- Often causes allergic dermatitis know as “nickel itch”. Inhalation can cause hypertrophic rhinitis and nasal sinusitis. In extreme cases it is suspected of causing cancer of the nasal cavities, lungs and other organs.

COBALT (Co) [4]	**7440-48-4**	**0.05 dust & fume**

- Cobalt has been reported as causing hypersensitization type dermatitis in some individuals. Excessive and prolonged overexposure of cobalt may cause an asthma-like disease with cough and dyspnea.

SILICON (Si)	**7440-21-3**	**10 Total Dust**

- May be responsible for benign pneumoconiosis, but is not considered to be dangerous in the cold state.

BERYLLIUM (Be) [2] [5] 7440-41-7 2 ug Compounds

- Airborne particles of beryllium alloys can cause irreversible lung damage and result in an acute or chronic systemic disease called berylliosis. Symptoms include a relatively non-productive cough, progressive difficulty in breathing, fatigue after slight exertion, loss of appetite and weight. Chronic symptoms are usually delayed in their onset and persistent in nature and can be triggered or aggravated by stresses, such as pregnancy, respiratory infection, and thyrotoxicosis. Beryllium is also suspected to be a human carcinogen and has caused cancer in laboratory animals.

ALUMINUM (Al) 7429-90-5 15 Dust/5 Fume

- Excessive exposure to aluminum fume and dust has been associated with lung disease; however this effect may be due to simultaneous silica exposure.

(1) Permissible Exposure Limits are expressed in milligrams per cubic meter of air (mg/m^3), unless noted.
(2) ug = microgram (one millionth of a gram; 10^{-6} gram)
(3) CL = Ceiling limit, not to be exceeded
(4) Is listed as a toxic chemical and requires reporting under Section 313 of the Community Right-To-Know Act.
(5) Item is suspected carcinogens in humans.

3. COMPOSITION/INFORMATION ON INGREDIENTS

UNS #	Description	Cu	Fe	Ni	Co	Si	Be	Other
C17200[4]	Beryllium Copper	Bal	-	-	.20 min[2]	.20	1.80 -2.00	.20 Al
C17500	Beryllium Copper	Bal	.10	-	2.4-2.7	.20	.4-.7	.20 Al
C17510[4]	Beryllium Copper	Bal	.10	1.4-2.2	0.3	.20	.2-0.6	.20 Al

(2) Ni+Co, 0.20% min; Ni+Fe+Co, 0.6% max
(4) Cu+Sum of Named Elements, 99.5% min.
(5) Cu+Sum of Named Elements, 99.7% min.

4. ACUTE HEALTH HAZARDS/FIRST AID MEASURES

ROUTES OF EXPOSURE: Direct eye or skin contact with metal dust or particles, and breathing metal fume or dust.

SYMPTOMS: Eye or skin particulate contact may cause irritation.

CONTACT WITH EYES: Metal particles should be removed by trained individuals such as a nurse or physicians

MEDICAL CONDITIONS EXAGGERATED BY OVEREXPOSURE: Allergy (sensitivity) to copper.

INGESTION: Induce vomiting immediately as directed by medical personnel.
.
CONTACT WITH SKIN: Use a mild hand cream if irritation develops.

INHALATION: Breathing dust or fume may cause nose and throat irritation and a sweet or metallic taste. Breathing high levels of fumes may cause metal fume fever which has flu-like symptoms. Copper, manganese or nickel exposure may cause asthma- like symptoms or skin rashes or dermatitis in people sensitive (allergic) to these metals.

Move to fresh air if overexposed to fumes.

5. FIRE FIGHTING MEASURES

- Metal solids will not burn or explode; however, finely divided metal dust can form explosive mixture in air.
- Explosive mixtures can form in areas with high concentrations of dust such as in process vessels, dust collectors and bulk loading operations.
- In case of a fire, isolate the fire and use class “D” fire extinguishing materials such as Lith-X, Dry Graphite, etc.
- DO NOT use water to extinguish fires around operations involving molten meal due to the potential for steam explosions.

6. ACCIDENTAL RELEASE

- If this material is a particulate, establish a restricted entry zone based on the severity of the spill. If dust or fume is collected and spilled, respiratory protection, dust masks or cartridge respirators with high efficiency particulate air filtration (HEPA) and protective clothing appropriate for the severity of the release should be used in cleaning up the spill.
- Clean up spills with a vacuum system utilizing a high efficiency particulate air (HEPA) filtration system followed by wet cleaning methods.
- Caution should be used to minimize airborne generation of particulates and avoid contamination of air and water.

7. HANDLING AND STORAGE

HAND AND BODY PROTECTION: Particulates may enter the body through cuts, abrasions or other wounds on the surface of the skin. Use appropriate work gloves when handling castings. Use protective apron and gauntlets if arc-air gouging, cutting or welding this material.

STORAGE: Store in a dry area.

8. EXPOSURE CONTROLS, PERSONAL PROTECTIVE EQUIPMENT

8.1 VENTILATION:

- Use sufficient ventilation to keep concentrations of dust and fumes below safe exposure guidelines (TWA / PEL). Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate.
- Where utilized, exhaust inlets to the ventilation system should be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users.

8.2 RESPIRATORS: If safe exposure guidelines are not met, use approved respirators for dusts or fumes; see OSHA Standards for Industry, 29 CFR 1910.134 for Respiratory Protection Program requirements.

8. 3 EYE PROTECTION: Wear safety glasses, goggles, face shield, hood or welder’s helmet when risk of eye injury is present, particularly during melting, casting, machining, grinding, welding, powder handling, etc. See OSHA Standards for Industry, 29 CFR 1910.133 for Eye and Face Protection Program requirements.

8.4 HEARING PROTECTION: Wear hearing protection if noise levels are at or above 90 dBA. See OSHA Standards for Industry, 29 CFR 1910.95 for Hearing Conservation Program requirements.

8.5 WORK PRACTICES:

- Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing. Provide appropriate cleaning/washing facilities.

- Procedures should be written that clearly communicate the facility's requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker.

- Fabrication processes may leave a residue of particulate on the surface of parts, products or equipment that could result in employee exposure during subsequent material handling activities. As necessary, use vacuum systems with high efficiency particulate air (HEPA) filters to clean loose particulate from parts between processing steps.

- Do not use compressed air, brooms or conventional vacuum cleaners to remove particulate from surfaces as this activity can result in elevated exposures to airborne particulate. As a standard hygiene practice, always wash hands before eating or smoking.

8.6 OTHER PROTECTIVE EQUIPMENT:

- Protective over garments or work clothing should be worn by persons who may come in contact with particulates during activities such as machining, furnace rebuilding, air cleaning equipment filter changes, maintenance, furnace tending, etc.

- Contaminated work clothing and over garments must be managed in a controlled manner to prevent secondary exposure to workers of third parties, to prevent the spread of particulates to other areas, and to prevent particulate from being taken home by workers. This would include protective gloves and the correct eye protection determined by the exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Solid Metal
COLOR: Red
ODOR: No odor
MELTING POINT (°F) 1590°F - 1976°F
WATER SOLUBILITY: Not Soluble
SPECIFIC GRAVITY: 8.26 – 8.89
BOILING POINT: N/A
EVAPORATION RATE: N/A
VAPOR DENSITY: N/A
VAPOR PRESSURE: N/A

10: STABILITY AND REACTIVITY

General Reactivity	The material is stable
Incompatibility (materials to avoid)	Copper is potentially explosive with acetylinic compounds, 3-bromopropene, ethylene oxide, lead azide,and ammonium nitrate. Ignites on contact with chlorine, fluorine, and hydrazinemononitrate. Reacts violently with sodium azide, halogenates, peroxides, hydrogen sulfide, hydrozoic acid, bromates, chlorates, iodates, chloride andpotassium oxide. Avoid contact with strong acids.

Hazardous Decomposition Products	High temperatures associated with smelting or welding releases metal oxide fumes.
Hazardous polymerization	Will not occur

11. TOXICOLOGICAL INFORMATION, CARCINOGEN STATUS:

Copper: Is not listed as a known or potential carcinogen, (cancer causing material).
Copper may cause sensitivities (allergies) with symptoms such as skin rashes and dermatitis.
Prolonged overexposure to dusts of metals in this alloy are reported to cause toxic effects, including anemia, central nervous damage, liver and kidney damage; symptoms may include apathy, lack of appetite and weakness.

Iron: This product is not considered a carcinogen by IARC, NTP, ACGIH or OSHA

Nickel: The International Agency for Research on Cancer (IARC) lists nickel as a Group 2B – Possibly Carcinogenic to Humans. However, IARC found there was inadequate evidence that metallic nickel is carcinogenic to humans but since there was sufficient evidence that it is carcinogenic to animals, IARC concluded that metallic nickel is possibly carcinogenic to humans.

Cobalt: The International Agency for Research on Cancer (IARC) lists cobalt as a Group 2B – Possibly Carcinogenic to Humans. EPA has not classified cobalt for carcinogenicity

Silicon: May be responsible for benign pneumoconiosis symptoms but is not listed by the EPA as a carcinogen**.**

Beryllium: The Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC) have determined that beryllium is a human carcinogen. The EPA has determined that beryllium is a probable human carcinogen. EPA has estimated that lifetime exposure to 0.04 $\mu g/m^3$ beryllium can result in a one in a thousand chance of developing cancer.

Aluminum: The Department of Health and Human Services (DHHS) and the EPA have not evaluated the carcinogenic potential of aluminum in humans. Aluminum has not been shown to cause cancer in animals.

12. ECOLOGICAL INFORMATION

This material may be recyclable. Contact your Sales Representative.

13. DISPOSAL CONSIDERATIONS

MATERIAL DISPOSAL: Return metal to reclaimer. Collected dust from machining, welding, etc. might be considered “hazardous waste” in some circumstances. Consult local, state and federal authorities regarding disposal of this material.

14. TRANSPORATION INFORMATION

DOT: Not regulated in solid form.

Hazard Communication regulations of the U.S. Occupational Safety and Health Administration require this product to be labeled.

15. REGULATORY INFORMATION

15.1. UNITED STATES FEDERAL REGULATIONS

15.1.1 Occupational Safety and Health Administration (OSHA)

Air contaminants, 29 CFR 1910.1000
Hazard Communication Standard, 29 CFR 1910.1200

15.2 Environmental Protection Agency (EPA)

AMBIENT AIR EMISSIONS: Most process air emission sources will require an air permit from a local and/or state air pollution control agency. The use of air cleaning equipment may be necessary to achieve the permissible emission. Tempered makeup air should be provided to prevent excessive negative pressure in a building. Direct recycling of cleaned process exhaust air is not recommended. Plant exhausts should be located so as not to re-enter the plant through makeup air or other inlets. Regular maintenance and inspection of air cleaning equipment and monitoring of operating parameters is recommended to ensure adequate efficiency is maintained.

WASTEWATER: Wastewater regulations can vary considerably. Contact your local and state governments to determine their requirements.

TOXIC SUBSTANCES CONTROL ACT: Component(s) of this material is/are listed on the TSCA Chemical Substance Inventory of Existing Chemical Substances

15.3 SARA TITLE III REPORTING REQUIREMENTS: On February 16, 1988, the U.S. Environmental Protection Agency (EPA) issued a final rule that implements the requirements of the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 (53) Federal Register 4525. Title III is the portion of SARA concerning emergency planning and community right-to-know issues. Section 313 covers annual emission reporting on specific chemicals which are manufactured, processed or used at certain U.S. Industrial facilities.
Under the Section 313 category of Compounds and/or Mixtures, these mixtures contain one or more of the following reportable constituents: Copper, Nickel, Beryllium, Cobalt, Iron, Silicon, and Aluminum.

Specific chemical makeup, concentration by weight and the Chemical Abstracts Services number for each of our products is provided in Section 3. You may obtain additional information by calling the EPA SARA Title III Hotline at 1-800-535-0202 (or 703-412-9810).

16. OTHER INFORMATION

Following is the label which accompanies this product during shipment.

This material data sheet (MSDS) provides information on a specific group of manufactured metal products. Since these metal products share a common physical nature and constituents, the data presented are applicable to all alloys identified.
This information was obtained from current and reputable resources. However, data are provided without warranty, expressed or implied, regarding correctness or accuracy. It is the user's responsibility both to determine safe conditions for us of this product and to assume liability for loss, injury, damage or expense resulting from improper use of this product.