wieland concast

SAFETY DATA SHEET

1. Identification

Product identifier	**Silicon Bronze Alloy**
Other means of identification	
SDS number	11
Product code	C64200, C65100, C65500, C66100, C69400, C87300, C87400, C87500, C87600, C87850
Recommended use	Manufacturing
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Company name	Wieland Concast
Address	14315 State Route 113 Wakeman, OH 44889 United States of America
E-mail	sales.concast@wieland.com
Telephone	1-440-965-4455
Emergency telephone	CHEMTREC (24-hrs) 1-800-424-9300

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Carcinogenicity	Category 2
	Reproductive toxicity (fertility, the unborn child)	Category 1A
	Reproductive toxicity	Effects on or via lactation
OSHA defined hazards	Combustible dust	
Label elements		

Signal word	Danger
Hazard statement	May form combustible dust concentrations in air. Suspected of causing cancer. May damage fertility or the unborn child. May cause harm to breast-fed children.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Prevent dust accumulation to minimize explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Do not breathe dust. Avoid contact during pregnancy/while nursing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Observe good industrial hygiene practices.
Response	If exposed or concerned: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Copper	7440-50-8	74 - 94
Zinc	7440-66-6	0.2 - 16
Aluminum	7429-90-5	0 - 7.6
Silicon	7440-21-3	1.5 - 5.5
Manganese	7439-96-5	0 - 1.5
Lead	7439-92-1	0 - 0.8

Composition comments All concentrations are in percent by weight unless otherwise indicated. Components not listed are either non-hazardous or are below reportable limits.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Remove contaminated clothing and wash skin with soap and water. Get medical attention if irritation develops and persists. 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. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth thoroughly if dust is ingested. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Prolonged exposure may cause chronic effects. Contact with hot material can cause thermal burns which may result in permanent damage.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Special powder against metal fires. Dry sand. Carbon dioxide (CO_2).
Apply extinguishing media carefully to avoid creating airborne dust. Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.

Unsuitable extinguishing media Do not use water or halogenated extinguishing media. Hot molten material will react violently with water resulting in spattering and fuming.

Specific hazards arising from the chemical Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. Contact with acids will release flammable hydrogen gas. During fire, gases hazardous to health may be formed. Combustion products may include: metal oxides. 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.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Minimize dust generation and accumulation. Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will sediment in water systems. Stop the flow of material, if this is without risk. Allow molten material to cool and solidify before disposal. Recover and recycle, if practical.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Combustible dust clouds may be created where operations produce fine material (dust). Handling and processing operations should be conducted in accordance with 'best practices' (e.g. NFPA-654). Explosion-proof general and local exhaust ventilation.

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3

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

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		1 mg/m3	Respirable dust.
Copper (CAS 7440-50-8)	PEL	1 mg/m3	Dust and mist.
		0.1 mg/m3	Fume.
Manganese (CAS 7439-96-5)	Ceiling	5 mg/m3	Fume.
Silicon (CAS 7440-21-3)	PEL	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.
Silicon (CAS 7440-21-3)	TWA	5 mg/m3	Respirable fraction.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.
Copper (CAS 7440-50-8)	TWA	1 mg/m3	Dust and mist.
		0.2 mg/m3	Fume.
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3	
Manganese (CAS 7439-96-5)	TWA	0.1 mg/m3	Inhalable fraction.
		0.02 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	5 mg/m3	Respirable.
		5 mg/m3	Welding fume or pyrophoric powder.
		10 mg/m3	Total
Copper (CAS 7440-50-8)	TWA	1 mg/m3	Dust and mist.
		0.1 mg/m3	Fume.
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3	
Manganese (CAS 7439-96-5)	STEL	3 mg/m3	Fume.
	TWA	1 mg/m3	Fume.
Silicon (CAS 7440-21-3)	TWA	5 mg/m3	Respirable.
		10 mg/m3	Total

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Lead (CAS 7439-92-1)	200 µg/l	Lead	Blood	*

* - For sampling details, please see the source document.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Unvented, tight fitting goggles should be worn in dusty areas. Use of safety glasses or goggles is required for welding, burning, sawing, brazing, grinding or machining operations. When welding, it is recommended that safety glasses, goggles, or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, “Safety in Welding and Cutting”) be worn.

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 appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow OSHA respirator regulations (29CFR 1910.134) and use NIOSH/MSHA approved respirators. Appropriate respirator selection should be made by a qualified professional.

Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. When using, do not eat, drink or smoke. 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.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Shapes, Solids, Tubes & Turnings.
Color	Yellow.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable (material is insoluble in water).
Melting point/freezing point	1680.8 °F (916 °C)
Initial boiling point and boiling range	Property has not been measured.
Flash point	Not applicable, material is a solid.
Evaporation rate	Not applicable, material is a solid.
Flammability (solid, gas)	Fine particles may form explosive mixtures with air.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Property has not been measured.
Explosive limit - upper (%)	Property has not been measured.
Vapor pressure	Not applicable, material is a solid.
Vapor density	Not applicable, material is a solid.
Relative density	8.3 (Water=1)
Solubility(ies)	
Solubility (water)	Insoluble in water.
Partition coefficient (n-octanol/water)	Not applicable, product is a mixture.
Auto-ignition temperature	Property has not been measured.
Decomposition temperature	Property has not been measured.
Viscosity	Not applicable, material is a solid.
Other information	
Bulk density	0.3 lb/in³ (68 °F (20 °C))
Density	8.3 g/cm³
Explosive properties	Not explosive.
Kinematic viscosity	Not applicable, material is a solid.
Oxidizing properties	Not oxidizing.
Particle size	Property has not been measured.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Contact with strong acids will release highly flammable hydrogen gas.
Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials. Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizing agents. Acids.
Hazardous decomposition products	Decomposition is not expected under normal conditions of use and storage.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract. Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain.
Skin contact	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the skin. Hot or molten material may produce thermal burns.
Eye contact	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eyes. Molten material will produce thermal burns.
Ingestion	Dust: May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Prolonged exposure may cause chronic effects. Contact with hot material can cause thermal burns which may result in permanent damage.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test Results
Silicon (CAS 7440-21-3)		
Acute		
Oral		
LD50	Rat	3160 mg/kg

Skin corrosion/irritation May cause irritation through mechanical abrasion.

Serious eye damage/eye irritation Dust or powder may cause mechanical eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Lead (CAS 7439-92-1) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Lead (CAS 7439-92-1) Reasonably Anticipated to be a Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity May cause harm to breastfed babies. May damage fertility. May damage the unborn child.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

Lead may produce maternal toxicity, toxicity to the fetus, and adverse effects to blood, bone marrow, central/peripheral nervous systems, kidney, liver, and reproductive system.

Chronic exposure to breathing low levels of manganese dust or fume over a long period of time can result in “manganism,” a disease of the central nervous system similar to Parkinson’s Disease, gait impairment, muscle spasms and behavioral changes.

Further information Welding or plasma arc cutting of metal and alloys can generate ozone, nitric oxides and ultraviolet radiation. Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Ozone overexposure may result in mucous membrane irritation or pulmonary discomfort. UV radiation can cause skin erythema and welders flash.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. Alloys in massive forms present a limited hazard for the environment.

Dust: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Copper (CAS 7440-50-8)			
Aquatic			
Chronic			
Other	NOEC	Juga plicifera	6 µg/l

Persistence and degradability The product solely consists of inorganic compounds which are not biodegradable.

Bioaccumulative potential The product contains potentially bioaccumulating substances.

Mobility in soil Alloys in massive forms are not mobile in the environment.

Other adverse effects This product contains one or more substances identified as hazardous air pollutants (HAPs) per the US Federal Clean Air Act (see section 15).

13. Disposal considerations

Disposal instructions Recover and recycle, if practical. Consult authorities before disposal. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

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)

Lead (CAS 7439-92-1)	0.1 % Annual Export Notification required.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper (CAS 7440-50-8)	Listed.
Lead (CAS 7439-92-1)	Listed.
Manganese (CAS 7439-96-5)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Lead (CAS 7439-92-1)	Reproductive toxicity Central nervous system Kidney Blood Acute toxicity

Toxic Substances Control Act (TSCA) All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Combustible dust
Carcinogenicity
Reproductive toxicity

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Aluminum	7429-90-5	0 - 7.6
Copper	7440-50-8	74 - 94
Lead	7439-92-1	0 - 0.8
Manganese	7439-96-5	0 - 1.5

Other federal regulations

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

Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)

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

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

US. Massachusetts RTK - Substance List

Aluminum (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Silicon (CAS 7440-21-3)

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

Aluminum (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Silicon (CAS 7440-21-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Aluminum (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Silicon (CAS 7440-21-3)

US. Rhode Island RTK

Aluminum (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)
Silicon (CAS 7440-21-3)

California Proposition 65

WARNING: This product can expose you to Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Lead (CAS 7439-92-1) Listed: October 1, 1992

California Proposition 65 - CRT: Listed date/Developmental toxin

Lead (CAS 7439-92-1) Listed: February 27, 1987

California Proposition 65 - CRT: Listed date/Female reproductive toxin

Lead (CAS 7439-92-1) Listed: February 27, 1987

California Proposition 65 - CRT: Listed date/Male reproductive toxin

Lead (CAS 7439-92-1) Listed: February 27, 1987

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Aluminum (CAS 7429-90-5)
Copper (CAS 7440-50-8)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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

Issue date 13-October-2012

Revision date 13-May-2022

Version # 04

Further information Refer to:
OSHA 3371-08 2009, Hazard Communication Guidance for Combustible Dusts
NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids

HMIS® ratings Health: 4*
Flammability: 2
Physical hazard: 0

NFPA ratings

Disclaimer Wieland Concast cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.