Mueller Brass Co.
Safety Data Sheet
DZR Brass Alloy (C35330)

Section 1 – Product / Supplier Information

Product Name ***Leaded Brasses DZR Alloy (C35330)***

Manufacturer Information

Mueller Brass Co.
2199 Lapeer Avenue
Port Huron, MI 48060

Phone: 810-966-0236

Emergency Telephone: CHEMTREC 800-424-9300

Section 2 – Hazard Identification

General Hazard Statement: Solid metallic products are generally classified as "articles" and do not constitute a hazardous materials in solid form under the definitions of the OSHA Hazard Communication Standard (29 CFR 1910.1200). Any articles manufactured from these solid products would be generally classified as non-hazardous. However some hazardous elements contained in these products can be emitted under **certain processing** conditions such as but not limited to: burning, melting, cutting, sawing, brazing, grinding, machining, milling, and welding. **The following classification information is for the hazardous elements which may be released during certain processing.**

GHS Classification:

Respiratory Sensitizer - Category 1B
Germ Cell Mutagenicity - Category 2
Carcinogenicity - Category 2
Toxic to reproduction - Category 1A
Specific target organ toxicity - Repeated exposure - Category 1 (respiratory system)
Hazardous to aquatic environment - Acute Hazard - Category 1
Hazardous to aquatic environment - Chronic Hazard - Category 1

GHS LABEL ELEMENTS
Symbol(s)

Signal Word

Danger

Hazard Statements

Causes eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
Suspected of causing genetic defects
Suspected of causing cancer
Causes damage to organs (kidneys, respiratory system)
Causes damage to organs through prolonged or repeated exposure (respiratory system)
Very toxic to aquatic life
Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace.
Wash hands thoroughly after handling
Wear protective gloves
Use personal protective equipment as required
Do not eat, drink or smoke when using this product.
Avoid release to the environment

Storage

Store locked up

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 – Composition/Information on Ingredients

CAS #	Component	Percent
7440-50-8	Copper	59.5 - 64
7440-66-6	Zinc	33.3 - 39
7439-92-1	Lead	1.50 – 2.5
7440-38-2	Arsenic	0.02 – 0.25

The above listing is a summary of elements used in alloying brass. Various grades will contain different combinations of these elements. Other trace elements may also be present in minute amounts. These small quantities (less than 0.1%) are frequently referred to as "trace" or "residual" elements; generally they originate in the raw material used. Such elements would include nitrogen (N), oil mist (mineral[1]), oxygen (O), and silver (Ag). Various byproducts of processing from these trace elements may include nitric oxide, nitrogen dioxide, and ozone, and these byproducts may also be considered trace. If listed in the above table, the ingredient is considered to be a component rather than trace.

Footnotes:

1. The bar/piece may have a light coating of oil to prevent corrosion.

Section 4 – First Aid Measures

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Eyes

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Consult a physician.

Skin

Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Ingestion

Do NOT induce vomiting. Call a physician or Poison Control Center immediately. Drink plenty of water. Never give anything by mouth to an unconscious person.

Inhalation

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Consult a physician.

Section 5 – Firefighting Measures

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

General Fire Hazards

See Section 9 for Flammability Properties. This product does not present fire or explosion hazards as shipped. Small chips, fines, and dust from processing may be readily ignitable.

Hazardous Combustion Products

Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact.

Extinguishing Media

Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and fines.

Unsuitable Extinguishing Media

DO NOT use halogenated extinguishing agents on small chips or fines. DO NOT use water for fires involving molten metal. These fire extinguishing agents will react with burning material.

Fire Fighting Equipment/Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 – Accidental Release Measures

The following information is for the hazardous elements which may be released during processing.

Recovery and Neutralization

Avoid dust formation. Collect scrap for recycling.

Materials and Methods for Clean-Up

If product is molten, contain the flow using dry sand or salt flux as a dam. All tools and containers which come in contact with molten metal must be preheated or specially coated and rust free. Allow the spill to cool before remelting as scrap.

Personal Precautions and Protective Equipment

Wear appropriate protective clothing and respiratory protection for the situation.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

Prevention of Secondary Hazards

None

Section 7 – Handling and Storage

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Handling Procedures

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid dust formation. Keep material dry. Avoid contact with sharp edges or heated material.

Storage Procedures
Keep container tightly closed in a dry and well-ventilated place.

Incompatibilities
See Section 10

Section 8 – Exposure Controls/Personal Protection
The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Component Exposure Limits
Copper (7440-50-8)
ACGIH: 0.2 mg/m^3 TWA (fume)
OSHA: 1.0 mg/m^3 TWA (dust, mist, as Cu) 0.1 mg/m^3 TWA (fume)
NIOSH: 1 mg/m^3 TWA (dust and mist); 0.1 mg/m^3 TWA (fume)

Lead (7439-92-1)
ACGIH: 0.05 mg/m^3 TWA
OSHA: 30 µg/m^3 Action Level (Poison, See 29 CFR 1910.1025); 50 µg/m^3 TWA
NIOSH: 0.050 mg/m^3 TWA

Arsenic (7440-38-2)
ACGIH: 0.01 mg/m^3
OSHA: 0.01 mg/m^3

Engineering Measures
Where feasible, enclose processes to prevent dust dispersion into the work area. Provide local exhaust when possible, and general ventilation as necessary, to keep airborne concentrations below exposure limits and as low as possible.

Personal Protective Equipment

Respiratory
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hands
Use impervious gloves such as neoprene, nitrile, or rubber for hand protection.

Eyes
Wear safety glasses with side shields and/or goggles as necessary to prevent dust from entering eyes.

Skin and Body
Use body protection appropriate for task.

Hygiene Measures
Do not breathe vapors/dust. When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs.

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Section 9 – Physical and Chemical Properties

Appearance:	Yellow-Brown Metal	**Odor:**	None
Physical State:	Solid	**pH:**	NA
Vapor Pressure:	ND	**Vapor Density:**	ND
Boiling Point:	ND	**Melting Point:**	866-1038 (°C) / 1590-1900 (°F)
Solubility (H2O):	Insoluble	**Specific Gravity:**	ND
Evaporation Rate:	ND	**VOC:**	ND
Octanol/H_2O Coeff.:	ND	**Flash Point:**	NA
Flash Point Method:	NA	**Upper Flammability Limit (UFL):**	NA
Lower Flammability Limit (LFL):	NA	**Burning Rate:**	NA
Auto Ignition:	NA		

Section 10 – Stability and Reactivity

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Chemical Stability

Stable under recommended storage conditions.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Dust formation. Heat, flames and sparks. Protect from water.

Incompatible Products

Acids. Alkalis. Water. Halogenated compounds. Metal oxides.

Hazardous Decomposition Products

Toxic metal oxides and carbon and nitrogen oxides may be produced during a fire involving metal alloys.

Section 11 – Toxicological Information

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Acute Toxicity

Component Analysis - LD50/LC50

NA

Skin

Contact with dust can cause mechanical irritation or drying of the skin. Contact with oils from processing may cause irritation. Prolonged skin contact may defat the skin and produce dermatitis. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Eye

Dust contact with the eyes can lead to mechanical irritation.

Ingestion

May be harmful if swallowed. May cause additional affects as listed under "Inhalation".

Inhalation

May be harmful if inhaled. Inhalation of dust in high concentration may cause irritation of respiratory system.

Respiratory Organs Sensitization/Skin Sensitization

May cause an allergic skin reaction

Generative Cell Mutagenicity

Suspected of causing genetic defects

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

B: Component Carcinogenicity

Lead (7439-92-1)

ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
OSHA:	30 µg/m3 Action Level (Poison, See 29 CFR 1910.1025); 50 µg/m3 TWA
NTP:	Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC:	Monograph 87 [2006] (evaluates inorganic lead compounds as Group 2A and organic lead compounds as Group 3) (Group 2A (probably carcinogenic to humans))

Arsenic (7440-38-2)

ACGIH:	Known to be a human carcinogen
IARC:	Group 1

Reproductive Toxicity

Lead may damage the reproductive system and cause developmental damage.

Specified Target Organ General Toxicity: Single Exposure

Causes damage to organs (kidneys, respiratory system)

Specified Target Organ General Toxicity: Repeated Exposure

May cause damage to organs through prolonged or repeated exposure (respiratory system). Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure. Prolonged exposure may cause chronic effects. Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.

Elevated temperature processing such as welding and plasma arc cutting may release hazardous fumes. Overexposure to metal fumes may cause pulmonary edema (fluid in the lungs) and methemaglobinemia. May also cause pulmonary fibrosis and lung cancer. Lead compounds may be absorbed by ingestion, by inhalation and through the skin. Lead may damage kidney function, the blood forming system and the reproductive system. Inorganic lead compounds can cause developmental damage.

Aspiration Respiratory Organs Hazard

Section 12 – Ecological Information

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

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Ecotoxicity

A: General Product Information

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Copper (7440-50-8)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	0.0068 - 0.0156 mg/L
96 Hr LC50 Pimephales promelas	<0.3 mg/L [static]
96 Hr LC50 Pimephales promelas	0.2 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	0.052 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	1.25 mg/L [static]
96 Hr LC50 Cyprinus carpio	0.3 mg/L [semi-static]
96 Hr LC50 Cyprinus carpio	0.8 mg/L [static]
96 Hr LC50 Poecilia reticulata	0.112 mg/L [flow-through]
72 Hr EC50 Pseudokirchneriella subcapitata	0.0426 - 0.0535 mg/L [static]
96 Hr EC50 Pseudokirchneriella subcapitata	0.031 - 0.054 mg/L [static]
48 Hr EC50 Daphnia magna	0.03 mg/L [Static]

Zinc (7440-66-6)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	2.16-3.05 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	0.211-0.269 mg/L [semi-static]
96 Hr LC50 Pimephales promelas	2.66 mg/L [static]
96 Hr LC50 Cyprinus carpio	30 mg/L
96 Hr LC50 Cyprinus carpio	0.45 mg/L [semi- static]
96 Hr LC50 Cyprinus carpio	7.8 mg/L [static]
96 Hr LC50 Lepomis macrochirus	3.5 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	0.24 mg/L [flow- through]
96 Hr LC50 Oncorhynchus mykiss	0.59 mg/L [semi- static]
96 Hr LC50 Oncorhynchus mykiss	0.41 mg/L [static]
96 Hr EC50 Pseudokirchneriella subcapitata	0.11 - 0.271 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	0.09 - 0.125 mg/L [static]
48 Hr EC50 Daphnia magna	0.139 - 0.908 mg/L [Static]

Lead (7439-92-1)

Test & Species	Conditions
96 Hr LC50 Cyprinus carpio	0.44 mg/L [semi- static]
96 Hr LC50 Oncorhynchus mykiss	1.17 mg/L [flow- through]
96 Hr LC50 Oncorhynchus mykiss	1.32 mg/L [static]
48 Hr EC50 water flea	600 µg/L

Arsenic (7440-38-2)

Test & Species	Conditions
96 Hr LC50 Pimephales Promelas	9.9 mg/L [semi-static]
48 Hr EC50 Daphnia magna	3.8 mg/L

Persistence/Degradability

Metal powders may cause ecological damage through silting or sedimentation effect in water depriving organisms of habitat and mobility, and/or fouling of gills, lungs and skin thus limiting oxygen uptake.

Bioaccumulation

Metal powders in water or soil may form metal oxides or other metal compounds that could become bioavailable and harm aquatic or terrestrial organisms.

Mobility in Soil

Metal powder would be relatively immobile in soils but some metal compounds may be transported with ground water.

Section 13 – Disposal Considerations

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Waste Disposal Instructions

See Section 7 for Handling Procedures.
See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of in accordance with federal, state and local regulations

Section 14 – Transport Information

The following information is for the hazardous elements which may be released during certain processing (See Section 2)

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Copper	7440-50-8	DOT regulated severe marine pollutant (powder)

DOT Information

Shipping Name: Not Regulated

IATA Information

Shipping Name: Not Regulated

ICAO Information

Shipping Name: Not Regulated

IMDG Information

Shipping Name: Not Regulated

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Section 15 – Regulatory Information

Regulatory Information

A: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Copper (7440-50-8)

SARA 313: 1.0 % de minimis concentration
CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm);

Zinc (7440-66-6)

SARA 313: 1.0 % de minimis concentration (dust or fume only)
CERCLA: 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

Lead (7439-92-1)

SARA 313: 0.1 % Supplier notification limit; 0.1 % de minimis concentration (when contained in stainless steel, brass, or bronze)
CERCLA: 10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm);

Arsenic (7440-38-2)

SARA 313: 0.1 % de minimis concentration

B: Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Copper (7440-50-8)

55-96 DOT regulated severe marine pollutant (powder)

State Regulations

A: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Copper	7440-50-8	Yes	Yes	Yes	Yes	Yes	Yes
Zinc	7440-66-6	Yes	Yes	No	Yes	Yes	Yes
Lead	7439-92-1	Yes	Yes	Yes	Yes	Yes	No
Arsenic	7440-38-2	Yes	Yes	No	Yes	Yes	No

PROPOSITION 65 - WARNING! This product contains a chemical known to the state of California to cause cancer, birth defects or other reproductive harm.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Copper	7440-50-8	1 %
Lead	7439-92-1	0.1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Copper	7440-50-8	Yes	DSL	EINECS
Zinc	7440-66-6	Yes	DSL	EINECS
Lead	7439-92-1	Yes	DSL	EINECS

Section 16 - Other Information

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; EU = European Union; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; NDSL = Non-Domestic Substances List; NTP = National Toxicology Program; TLV = Threshold Limit Value; TWA = Time Weighted Average; NIOSH = National Institute of Occupational Safety and Health; OSHA = Occupational Safety and Health Administration; IMDG = International Maritime Dangerous Goods Code; IATA = International Air Transport Association

Literature References

None

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