

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product form: Mixture

Product name: Zinc and Zinc Aluminum Based Alloys

Product code: ASTM B240-13; ASTM B 892-10

1.2. Intended Use Of The Product

Use of the substance/mixture: Production of Zinc and Zinc Aluminum Castings.

1.3. Name, Address, And Telephone Of The Responsible Party

Allied Metal Company

1300 North Kostner Avenue

Chicago, Illinois 60651

T 312-225-2800

www.alliedmetalcompany.com

1.4. Emergency telephone number

Emergency number : 312.225.2800

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified. This product is considered an article in its final form and not subject to the requirements for classification or labeling under 29 CFR 1910.1200.

2.2. Label elements

GHS-US labeling

No labeling applicable

2.3. Other hazards

Other hazards not contributing to the classification: Metallic dusts may ignite or explode. Molten material may produce fumes that are toxic, or irritating, and may cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. When machined or physically altered material may produce dusts or ribbons that may be irritating or harmful. Risk of thermal burns on contact with molten product. Exposure may aggravate those with pre existing eye, skin, or respiratory conditions.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixture

Name	Product Identifier	%	GHS-US classification
Zinc	(CAS No.) 7440-66-6	> 69.398	Not classified
Aluminum	(CAS No.) 7429-90-5	< 28.01	Not classified
Copper	(CAS No.) 7440-50-8	< 11.01	Not classified
Iron	(CAS No.) 7439-89-6	< 0.071	Not classified
Magnesium	(CAS No.) 7439-95-4	< 0.061	Not classified
Nickel	(CAS No.) 7440-02-0	< 0.021	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Chronic 3, H412
Cadmium	(CAS No.) 7440-43-9	< 0.0051	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Lead	(CAS No.) 7439-92-1	< 0.0051	Muta. 2, H341 Carc. 1B, H350

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			Repr. 1A, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Tin	(CAS No.) 7440-31-5	< 0.0021	Not classified

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid measures after skin contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation persists.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries: Risk of thermal burns on contact with molten product.

Symptoms/injuries after inhalation: Under normal conditions of use not expected to present a significant hazard. Under milling, or physical alteration metal dusts may be produced that cause irritation of the respiratory tract, skin, and may be harmful. Molten material may release toxic, and irritating fumes, leading to metal fume fever.

Symptoms/injuries after skin contact: May cause mild skin irritation. Risk of thermal burns on contact with molten product.

Symptoms/injuries after eye contact: Direct contact with the eyes is likely irritating. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/injuries after ingestion: Gastrointestinal irritation. Abdominal pain. Nausea. Diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Carbon dioxide, dry chemical.

Unsuitable extinguishing media: If zinc dust is produced do not use water. In molten state: reacts violently with water (moisture).

5.2. Special hazards arising from the substance or mixture

Fire hazard: Not considered flammable but may burn at high temperatures. Dust, chips, or ribbons can be ignited more easily, by an ignition source, by improper machining, or by spontaneous combustion if finely divided and damp. Metallic dusts may ignite or explode.

Explosion hazard: Molten zinc may react explosively or violently on contact with water, and certain metal oxides.

Reactivity: Hazardous reactions will not occur under normal conditions. Metallic dusts may ignite or explode. Zinc oxides may react violently with chlorinated rubber.

5.3. Advice for firefighters

Precautionary measures fire: Under fire conditions, hazardous fumes will be present.

Firefighting instructions: Exercise caution when fighting any chemical fire.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Avoid all contact with skin, eyes, or clothing. Do not breathe dust or fumes.

6.1.1. For non-emergency personnel

Protective equipment: Use appropriate personal protection equipment (PPE).

Emergency procedures: Evacuate unnecessary personnel.

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6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment: If metal is in molten form allow to cool and collect as a solid. If metal is in solid form collect for remelting purposes.

Methods for cleaning up: Clear up spills immediately and dispose of waste safely.

6.4. Reference to other sections

See heading 8, exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Risk of thermal burns on contact with molten product. When heated to decomposition, emits toxic fumes. When heated, material emits irritating fumes. Do not breathe dust or fumes. Avoid dust production. Do not breathe dust. 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. Final product may have sharp edges.

Precautions for safe handling: Avoid breathing dust, fumes.

Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store away from incompatible materials.

Incompatible products: Strong acids. Strong bases. Strong oxidizers. When molten: water. Zinc oxides may react violently with chlorinated rubber.

Storage area: Store locked up.

7.3. Specific end use(s)

Production of Zinc and Zinc Aluminum Castings.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (7440-50-8)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.1 mg/m ³
USA IDLH	US IDLH (mg/m ³)	100 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
Aluminum (7429-90-5)		
USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³

8.2. Exposure controls

Appropriate engineering controls

: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Avoid high dust concentration.

Personal protective equipment

: Protective clothing. Gloves. Face shield. In case of dust production: protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for protective clothing

: Anti-static clothing in natural material or heat resistant synthetic material.

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Hand protection	: Wear chemically resistant protective gloves. Thermal hazard protection.
Eye protection	: Chemical goggles or face shield.
Skin and body protection	: Wear hard hat, spats, and safety toe shoes.
Respiratory protection	: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.
Thermal hazard protection	: Protect skin and eyes from contact with molten material. If material is hot, wear thermally resistant protective gloves.
Other information	: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid. Silvery. Metallic.
Odour	: Odorless.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 419.53 °C (787.15°F)
Freezing point	: No data available
Boiling point	: 907 °C (1665°F)
Flash Point	: No data available
Auto-ignition temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Specific gravity	: 7.14g/cm ³
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity	: Liquid at 419°C, 0.00385 N/m
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Not applicable

9.2. Other information No additional information available

SECTION 10: Stability and reactivity

Reactivity Hazardous reactions will not occur under normal conditions. Metallic dusts may ignite or explode. Zinc oxides may react violently with chlorinated rubber.

Chemical Stability Stable under normal conditions.

Possibility Of Hazardous Reactions Hazardous polymerization will not occur. In molten state: reacts violently with water (moisture).

Conditions To Avoid Extremely high or low temperatures. Incompatible materials. Avoid creating or spreading dust.

Incompatible Materials Strong acids. Strong bases. Strong oxidizers. When molten: water. Zinc oxides may react violently with chlorinated rubber.

Hazardous Decomposition Products Metal oxides. Fumes. Inhalation of fumes may cause metal fume fever. Hydrogen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

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Cadmium (7440-43-9)	
LD50 oral rat	2330 mg/kg
Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
Iron (7439-89-6)	
LD50 oral rat	984 mg/kg
ATE (oral)	984 mg/kg
Magnesium (7439-95-4)	
LD50 oral rat	230 mg/kg

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Not classified

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Cadmium (7440-43-9)	
IARC group	1
National Toxicity Program (NTP) Status	2
Nickel (7440-02-0)	
IARC group	2B
National Toxicity Program (NTP) Status	3
Lead (7439-92-1)	
IARC group	2A
National Toxicity Program (NTP) Status	3

Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): Not classified

Specific target organ toxicity (repeated exposure): Not classified

Aspiration hazard: Not classified

Symptoms/injuries after inhalation: Under normal conditions of use not expected to present a significant hazard. Under milling, or physical alteration metal dusts may be produced that cause irritation of the respiratory tract, skin, and may be harmful. Molten material may release toxic, and irritating fumes, leading to metal fume fever.

Symptoms/injuries after skin contact: May cause mild skin irritation. Risk of thermal burns on contact with molten product.

Symptoms/injuries after eye contact: Direct contact with the eyes is likely irritating. Dusts caused from milling and physical alteration will likely cause eye irritation. Fumes from thermal decomposition or molten material will likely be irritating to the eyes.

Symptoms/injuries after ingestion: Gastrointestinal irritation. Abdominal pain. Nausea. Diarrhea.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Do not flush down sewers.

Cadmium (7440-43-9)	
LC50 fishes 1	0.003 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
EC50 Daphnia 1	0.0244 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 fish 2	0.006 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
Nickel (7440-02-0)	
LC50 fishes 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	0.18 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata)
LC50 fish 2	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 2	0.174 - 0.311 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

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Zinc (7440-66-6)	
LC50 fishes 1	2.16 - 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	0.139 - 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 1	0.11 - 0.271 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
LC50 fish 2	0.211 - 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
EC50 other aquatic organisms 2	0.09 - 0.125 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
Lead (7439-92-1)	
LC50 fishes 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 1	600 µg/l (Exposure time: 48 h - Species: water flea)
LC50 fish 2	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])
Copper (7440-50-8)	
LC50 fishes 1	0.0068 - 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 other aquatic organisms 1	0.0426 - 0.0535 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC50 fish 2	< 0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 other aquatic organisms 2	0.031 - 0.054 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])
Iron (7439-89-6)	
LC50 fishes 1	13.6 mg/l (Exposure time: 96 h - Species: Morone saxatilis [static])
LC50 fish 2	0.56 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])

12.2. Persistence and degradability

Zinc and Zinc Aluminum Based Alloys	
Persistence and degradability	Not established.

Copper (7440-50-8)	
Persistence and degradability	Not readily biodegradable.

12.3. Bioaccumulative potential

Zinc and Zinc Aluminum Based Alloys	
Bioaccumulative potential	Not established.

12.4. Mobility in soil No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste disposal recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

SECTION 14: Transport information

In accordance with ICAO/IATA/DOT/TDG

14.1. UN number Not regulated for transport

14.2. UN proper shipping name Not regulated for transport

14.3. Additional information

Other information : **Not regulated for transport**

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Overland transport Not regulated for transport

Transport by sea Not regulated for transport

Air transport Not regulated for transport

SECTION 15: Regulatory information

15.1. US Federal regulations

Cadmium (7440-43-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	0.1 %
Tin (7440-31-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Nickel (7440-02-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
RQ (Reportable quantity, section 304 of EPA's List of Lists) :	100 lb (only applicable if particles are < 100 µm)
SARA Section 313 - Emission Reporting	0.1 %
Zinc (7440-66-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)
Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	0.1 %
Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %
Iron (7439-89-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Aluminum (7429-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)
Magnesium (7439-95-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State regulations

Cadmium (7440-43-9)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.
Nickel (7440-02-0)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.

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U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.

Cadmium (7440-43-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Tin (7440-31-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Nickel (7440-02-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Zinc (7440-66-6)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Lead (7439-92-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Copper (7440-50-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Aluminum (7429-90-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Magnesium (7439-95-4)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information

: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.
This product is considered an article in its final form and not subject to the requirements for classification or labeling under 29 CFR 1910.1200.

GHS Full Text Phrases:

Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1A	Toxic to reproduction Category 1A
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1

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Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
Skin Sens. 1	Skin sensitisation Category 1
H317	May cause an allergic skin reaction
H341	Suspected of causing genetic defects
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H350	May cause cancer
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)