Aufhauser Corporation

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Safety Data Sheet

1. Supplier and Manufacturer

Aufhauser Corporation
39 West Mall
Plainview NY 11803 USA
Telephone: 516-694-8696 www.brazing.com
Emergency Phone Number: 516-694-8696 or 212-246-0205
24-hour Emergency Response: 212-246-9420 or 911
SDS Number: MWZn 202304
Product Codes: **Metallizing wires (Zinc based): Zn-1, Zn-2, ZnAl-1, ZnAl-2**
Product Use(s): Alloys for welding and other metallurgical processes.

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2. Hazards identification

Classification(s)
GHS Classified: Not classified.
GHS Label Symbol(s): n/a
GHS Label Signal Word(s): n/a
GHS Label Hazard Statement(s): n/a
GHS Precautionary statements: n/a

Label Precautionary Statement(s):
WARNING: PROTECT yourself and others. Read and understand this information.
FUMES AND GASES can be hazardous to your health.
ARC RAYS can injure your eyes and burn skin.

• Before Use, read and understand the manufacturer's instructions. Safety Data Sheets (SDSs), and your employer's safety policies. • Keep your head out of the fumes. • Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area. • Wear correct eye, ear, and body protection. • Do not touch live electrical parts.

Other Hazards: 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.

3. Composition/information on ingredients

Ingredients	CAS	% wt	GHS note
Zinc	7440-66-6	80 - 100	
Aluminum	7429-90-5	0 - 16	
Copper	7440-50-8	< 0.1	Aquatic Acute 1: H400
Iron	7439-89-6	< 0.1	Acute Tox 4 (oral): H302
Lead	7439-92-1	< 0.1	Carc 1B: H350
Tin	7440-31-5	< 0.1	
Cadmium	7440-43-9	< 0.1	Acute Tox 3 (oral): H301; Acute Tox 1 (inhale): H330; Carc 1B: H350; STOT RE 2: H373

Note: The percentage by weight values for the ingredients in this product represent approximate formulation values.

4. First aid measures

Description of First Aid Measures
General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label and this SDS if possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Ventilate the area. Call a POISON CENTER/doctor/physician if you feel unwell.
Skin: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists. Wash contaminated clothing before reuse. In molten form: Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance.
Eye: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention. In molten form: Removal of solidified molten material from the eyes requires medical assistance.
Ingestion: Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if conscious. Call a physician or poison control center immediately.
Note to Physician: Treat symptoms and eliminate overexposure.

Most Important Symptoms and Effects Both Acute and Delayed
General: Welding, cutting, or processing this material may release dust or fumes that are hazardous. During processing, inhalation of fumes may cause dizziness and/or irritation to the eyes, nose, and throat. Hot molten product will cause thermal burns to the skin.
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.
Skin Contact: May cause mild skin irritation. Contact with hot, molten metal will cause thermal burns.
Eye Contact: Fumes from thermal decomposition may cause eye irritation. Dusts caused from milling and physical alteration will likely cause eye irritation. Risk of thermal burns on contact with molten product. Arc rays and sparks can burn eyes.
Ingestion: Gastrointestinal irritation, abdominal pain, nausea, diarrhea. Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: This product is intended for use in ARC welding. During this process UV rays irritate the superficial corneal epithelium, causing inhibition of mitosis, production of nuclear fragmentation, and loosening of the epithelial layer. Under experimental conditions in animals, phototoxic effects have been demonstrated at all levels of the cornea, including the stroma and endothelium. Aluminum: Inhalation of finely divided aluminum powder may cause pulmonary fibrosis. Copper: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed
If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label/SDS at hand.

5. Firefighting measures
Products as shipped are non-hazardous, nonflammable, non-explosive, and nonreactive.
Extinguishing Media
Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO_2), dry sand.
Unsuitable Extinguishing Media: Do not use water in presence of zinc dust. Do not use water on molten metal.

Special Hazards Arising From the Substance or Mixture
Fire Hazard: Not considered flammable. Will 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. (Welding arcs and sparks can ignite combustible and flammable materials.)
Explosion Hazard: Molten zinc may react explosively or violently on contact with water. Ensure proper welding procedures to avoid welding explosions.
Reactivity: None under normal conditions. Metallic dusts may ignite or explode. Zinc oxides may react violently with chlorinated rubber.

Advice for Firefighters
Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions hazardous fumes will be present. Finely divided forms (dust) of product may be reactive and combustible.
Firefighting Instructions: Exercise caution when fighting any chemical fire. Do not breathe fumes from fires or vapors from decomposition. Avoid raising dust.
Protection During Firefighting: Use proper protective equipment, including respiratory protection.
Hazardous Combustion Products: Carbon oxides (CO, CO_2). Metal oxides. Aluminum oxides, zinc oxides. Aluminum (component) can react with many alcohols or sodium hydroxide and produce flammable hydrogen gas.

6. Accidental release measures
Personal Precautions, Protective Equipment and Emergency Procedures
General Measures: Do not breathe vapors from molten product. Avoid all contact with skin, eyes, or clothing. Avoid breathing vapor, mist, dust, fumes.

For Non-Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).
Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel
Protective Equipment: Equip response and cleanup crew with proper protection.
Emergency Procedures: Evacuate unnecessary personnel. Eliminate ignition sources. Ventilate area.

Environmental Precautions
Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up
For Containment: Where possible allow molten material to solidify naturally. Contain and collect as any solid.
Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Ventilate area. Use explosion proof vacuum during cleanup, with appropriate filter. Do not mix with other materials. Use only non-sparking tools. Transfer spilled material to a suitable container for disposal.

7. Handling and storage

Precautions for Safe Handling
Use proper ventilation and respiration apparatus; eye, hand, and body protection as necessary.
Additional Hazards When Processed: Thermal spray byproducts: Fine dust clouds may form explosive mixtures in air. Fumes from processing of this material can be harmful if inhaled. See ANSI Z49.1-1967 Safety in Welding and Cutting published by the American Welding Society and OSHA Hazard Communication Standard 1910.1200 for additional details regarding the handling and storage of this material.
Precautions for Safe Handling: Do not breathe dust. Use appropriate personal protective equipment when handling and observe good personal hygiene measures after handling. Do not handle until all safety precautions have been read and understood.
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.

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. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.
Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. When molten: water. Zinc oxides may react violently with chlorinated rubber.

8. Exposure controls/personal protection.

Ingredients – Exposure Limits

Aluminum	ACGIH TWA (mg/m³): 1 mg/m³ (respirable fraction) ACGIH chemical category; Not Classifiable as a Human Carcinogen OSHA PEL (TWA) (mg/m³); 15 mg/m³ (total dust) 5 mg/m³ (respirable fraction) NIOSH REL (TWA) (mg/m³); 10 mg/m³ (total dust) 5 mg/m³ (respirable dust)
Iron	ACGIH TWA: 5 mg/m3 (fume) OSHA PEL (TWA): 10 mg/m3 (fume) NIOSH REL (TWA): 5 mg/m3 (fume)
Copper	ACGIH TWA (mg/m³); 0.2 mg/m³ (fume) OSHA PEL (TWA) (mg/m³); 0.1 mg/m³ (fume) 1 mg/m³ (dust and mist) NIOSH REL (TWA) (mg/m³); 1 mg/m³ (dust and mist) 0.1 mg/m³ (fume) US IDLH (mg/m³); 100 mg/m³ (dust, fume and mist)
Aluminum, welding fumes	NIOSH REL (TWA) (mg/m³); 5 mg/m³
Zinc (as oxide)	ACGIH TWA (mg/m³): 2 (resp) OSHA PEL (TWA) (mg/m³): 5

Exposure Controls
Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. All equipment should comply with the National Electric Code. When cutting, grinding, crushing, or drilling, provide general or local ventilation systems, as needed, to maintain airborne dust concentrations below the regulatory limits. Local vacuum collection is preferred since it prevents release of contaminants into the work area by controlling it at the source. Other technologies that may aid in controlling airborne respirable dust include wet suppression, ventilation, process enclosure, and enclosed employee work stations. Dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product should contain explosion relief vents, explosion suppression system, or an oxygen-deficient environment. Prevent dust accumulation (to minimize explosion hazard).

Personal Protective Equipment: Gloves. Protective clothing. Face shield. Insufficient ventilation: wear respiratory protection.
Materials for Protective Clothing: Anti-static clothing in natural material. With molten material wear thermally protective clothing.
Hand Protection: Chemically resistant gloves. Heat resistant gloves.
Eye Protection: Chemical goggles or safety glasses. Welders should wear goggles or safety glasses with side shields that comply with ANSI Z87.1 under welding helmets and always wear goggles or other suitable eye protection when gas welding or oxygen cutting.
Skin and Body Protection: Wear fire/flame resistant/retardant clothing appropriate for task.
Respiratory Protection: Wear approved respiratory apparatus appropriate for task.
Thermal Hazard Protection: Fire retardant clothing and gloves, as well as safety shoes are required for safe furnace work.
Consumer Exposure Controls: Do not eat, drink or smoke during use.

9. Physical and chemical properties

Physical state: Solid	Appearance: silver, gray metallic luster; wire/rod
Odor: none	Odor threshold: n/a
pH: n/a	Evaporation rate: n/a
Melting point: 420 C (787 F)	Freezing point: n/a
Boiling point (@ 24 mm Hg): 907 C (1665 F)	Flash point: n/a
Auto-ignition temperature: n/a	Decomposition temperature: n/a
Flammability (solid, gas): n/a	Lower flammable limit: n/a
Upper flammable limit: n/a	Vapor pressure (mm Hg @ 1284C): n/a
Relative vapor density at 20C: n/a	Relative density (flux-cored rod): n/a
Specific gravity @ 20C (water = 1): 7.14	Solubility in water: Insoluble
Partition coefficient (N-octanol/water): n/a	Viscosity: Liquid at 419 C, 0.00385 N/m
Explosion - sensitivity to mechanical impact: not expected to present an explosion hazard due to mechanical impact	Explosion - sensitivity to static discharge: not expected to present an explosion hazard due to static discharge

10. Stability and reactivity

Products as shipped are non-hazardous, nonflammable, non-explosive, and nonreactive.
Reactivity: None under normal conditions. If dust is formed: Metallic dusts may ignite or explode. Zinc oxides may react violently with chlorinated rubber.
Chemical Stability: Stable under normal conditions.
Possibility of Hazardous Reactions: Will not occur. In molten state: reacts violently with water (moisture).
Conditions to Avoid: Incompatible materials. Uncontrolled exposure to extreme temperatures. Avoid creating 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. Oxides of aluminum, zinc. Hydrogen. (Fumes may be toxic.)

11. Toxicological information

Information on Toxicological Effects - Product

Acute Toxicity: Not classified	LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Not classified	Serious Eye Damage/Irritation: Not classified
Respiratory or Skin Sensitization: Not classified	Germ Cell Mutagenicity: Not classified
Teratogenicity: Not available	Carcinogenicity: Not classified.
Specific Target Organ Toxicity (Repeated Exposure): Not classified	Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single 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 material.
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.
Chronic Symptoms: This product is intended for use in ARC welding. During this process UV rays irritate the superficial corneal epithelium, causing inhibition of mitosis, production of nuclear fragmentation, and loosening of the epithelial layer. Under experimental conditions in animals, phototoxic effects have been demonstrated at all levels of the cornea, including the stroma and endothelium.

Aluminum	Inhalation of finely divided aluminum powder may cause pulmonary fibrosis.
Copper	Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair. Tissue damage of mucous membranes may follow chronic dust exposure.
Zinc (as oxide)	Harmful if swallowed. Harmful if inhaled. May cause damage to organs through prolonged or repeated exposure

Information on Toxicological Effects - Ingredient(s)

Copper	TDLo (oral human) = 0.12 mg/kg; gastrointestinal effects US EPA-D (Not classifiable as to human carcinogenicity)
Iron	TDLo (oral child) = 77 mg/kg; BAH, gastrointestinal tract, blood effects ACGIH TLV- A4 (Not classifiable as a human carcinogen) IARC Group 3 (Unclassifiable as to carcinogenicity in humans)
Zinc	TCLo (inhalation human) = 124 mg/m3/50 mins.; pulmonary system effects, skin Skin irritancy (human) = 300 mg/3 days/intermittent; mild US EPA-D (Not classifiable as to human carcinogenicity)
Cadmium	LD50 (oral, rat): 2300 mg/kg IARC-1 (Carcinogenic to humans)
Lead	IARC-2A (Probably carcinogenic to humans)

12. Ecological information

Toxicity: Very toxic to aquatic life.

Cadmium	LC50 (fish): 0.003 mg/L (Exposure time: 96 hours - Species: Oncorhynchus mykiss [flow-through]) EC50 (other aquatic organisms): 0.0244 mg/L (48h - Daphnia magna [static]) LC50 (fish 2): 0.006 mg/L (96h - Oncorhynchus mykiss [static])
Copper	LC50 Fish 1: <= 0.0068 (0.0068 - 0.0156) mg/L (96h - Pimephales promelas) EC50 Daphnia 1: 0.03 mg/L (48 h - Daphnia magna [Static]) EC50 Other Aquatic Organisms 1: 0.0426 (0.0426 - 0.0535) mg/L (72h - Pseudokirchneriella subcapitata [static]) LC 50 Fish 2: 0.3 mg/L (96 h - Pimephales promelas [static]) EC50 Other Aquatic Organisms 2: 0.031 (0.031 - 0.054) mg/L (96 h - Pseudokirchneriella subcapitata [static])
Iron	LC50 Fish: 0.56 mg/L (Exposure time: 96h - Species: Cyprinus carpio) LC50 Fish2: 13.6 mg/L (96h - Morone saxatilis [static])
Zinc	LC50 Fish 1: 2.16 - 3.05 mg/L (96h - Pimephales promelas) EC50 Daphnia 1: 0.139 - 0.908 mg/L (48h - Daphnia magna) EC50 other aquatic organisms 1: 0.11 - 0.271 mg/L (96h - Pseudokirchneriella subcapitata) LC50 Fish 2: 0.211 - 0.269 mg/L (96h - Pimephales promelas) EC50 other aquatic organisms 2: 0.09 - 0.125 mg/L (72h - Pseudokirchneriella subcapitata)
Lead	LC50 (fish): 0.44 mg/L (96h - Cyprinus carpio [semi-static]) LC50 (fish2): 1.17 mg/L (96h - Oncorhynchus mykiss [flow-through]) EC50 (other aquatic organisms): 600 microgram/L (48h - Daphnia magna)

Persistence and Degradability: Copper: Not readily biodegradable.
Environmental Stability: Components of product will react with water and air to form a variety of metal oxides.
Bioaccumulative: Potential Not available
Mobility in Soil: Not available
Other Adverse Effects: Not available

13. Disposal considerations

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.
Additional Information: Recycle where possible and/or dispose of spent material such as metals & metal-bearing waste and submerged arc welding (SAW) flux/slag appropriately.
EPA Waste Number: None

14. Transport information

Transport is not regulated in accordance with: USDOT, TDG (Canada), IATA, or IMDG.

15. Regulatory information

	US Federal Regulations	**Canadian**
Aluminum	Listed on the United States TSCA (Toxic Substances Control Act) inventory; Listed on United States SARA Section 313 SARA Section 311/312 Hazard Classes: Fire hazard Reactive hazard	Listed on the Canadian DSL (Domestic Substances List); Listed on the Canadian IDL (Ingredient Disclosure List) IDL Concentration 1 %

	SARA Section 313 - Emission Reporting: 1.0% (dust or fume only)	WHMIS Classification: Class B Division 6 - Reactive Flammable Material; Class B Division 4 - Flammable Solid
Zinc	Listed on the United States TSCA (Toxic Substances Control Act) inventory; Listed on United States SARA Section 313 SARA Section 313 - Emission Reporting: 1.0% (dust or fume only)	Listed on the Canadian DSL (Domestic Substances List); Listed on the Canadian IDL (Ingredient Disclosure List)
Copper	Listed on the United States TSCA (Toxic Substances Control Act) inventory; Listed on United States SARA Section 313 SARA Section 313 - Emission Reporting: 1.0%	Listed on the Canadian DSL (Domestic Substances List); Listed on the Canadian IDL (Ingredient Disclosure List) IDL Concentration 1 % WHMIS Classification: Uncontrolled product according to WHMIS classification criteria
Iron	Listed on United States TSCA (Toxic Substances Control Act) inventory	WHMIS Class B-4
Lead	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%	

State Regulatory Information:
Some components are listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains information required by CPR.

WARNING: This product may contain chemicals, and when used for welding or brazing may produce fumes or gases containing chemicals known to the state of California to cause cancer, and/or birth defects (or other reproductive harm).

Proposition 65 (California):
· Chemicals known to cause cancer: lead, cadmium
· Chemicals known to cause reproductive toxicity for females: lead
· Chemicals known to cause reproductive toxicity for males: lead, cadmium
· Chemicals known to cause developmental toxicity: lead, cadmium

16. Other information including information on preparation and revision of the SDS

NFPA Health Hazard: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given. NFPA Fire Hazard: 0 - Materials that will not burn. NFPA Reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.	HMIS III Rating Health: 1 Slight Hazard - Irritation or minor reversible injury possible; (Product containing flux: 3 - Major injury likely unless prompt action taken) Flammability: 0 Minimal Hazard Physical: 0 Minimal Hazard

Date of Preparation: 2023-04

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