



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: UltraWeld Exothermic Welding Material
SYNONYMS: UltraWeld, Weld Metal, Copper Based Exothermic Welding Material

MANUFACTURER: Harger Inc.
301 Ziegler Drive
Grayslake, IL 60030, USA

SUPPLIER: Harger Inc.
301 Ziegler Drive
Grayslake, IL 60030, USA

EMERGENCY TELEPHONE NUMBERS: US: CHEMTREC 1-800-424-9300
CN: CHEMTREC 1-800-424-9300
Outside North America: 1-703-527-3887
(Collect calls accepted)

CHEMICAL FAMILY: Mixture of granular solid metals and metal oxides with a gray/silver appearance
PRODUCT USE: Copper based exothermic materials are exothermic mixtures that through a controlled reaction, produce molten metal and a ceramic phase by-product.

SECTION 2 HAZARDS IDENTIFICATION

GHS Classification: Acute Toxicity – Category 4
Eye Irritation – Category 2B

General Information: Copper based exothermic materials are exothermic mixtures that produce molten metal and a ceramic phase by-product. The reaction temperatures can exceed 4000°F (2200°C) producing molten metal in excess of 2500°F (1370°C).

GHS LABEL ELEMENTS : As required for Finished Goods according to End-Use Products Regulations

PICTOGRAM:



SIGNAL WORD:

WARNING

Hazard Statements

H302 Harmful if swallowed
H320 Causes eye irritation

Precautionary Statements

P260 Do not breathe dust/fume
P261 Avoid breathing dust/fumes/gas/mist/vapors/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301/P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P305/P351/P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P273 Avoid release to the environment.
P501 Dispose of contents/container in accordance with local regulations.
P330 Rinse mouth.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

HMIS HAZARD CLASSIFICATIONS:

HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 1

NFPA HAZARD CLASSIFICATIONS:

HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 1

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

<i>Component</i>	<i>CAS Number</i>	<i>% by Wt</i>	<i>EC NO.</i>
Cuprous Oxide	1317-39-1	< 95%	215-270-7
Cupric Oxide	1317-38-0	< 10%	215-269-1
Copper / Aluminum Alloy <60 % Cu / <60% Al	Al 7429-90-5 Cu 7440-50-8	< 25 % total	231-072-3 231-159-6
Aluminum/Vanadium Alloy** <60% Al / <60% V	Al 7429-90-5 V 7440-62-2	< 5% total	231-072-3 231-171-1
Tin ***	7440-31-5	< 6%	231-141-8
Fluorspar	7789-75-5	< 5%	232-188-7
Calcium Silicon Alloy	12013-55-7	< 5%	234-587-1
	NA – Not Applicable	NE – Not Established	ND – Not Determined

All concentrations are not to exceed values and are by weight base of the solid powdered mixture.

** Cathodic protection welding materials only

*** Cast Iron welding materials only

SECTION 4 FIRST AID MEASURES

PRIMARY ROUTES OF ENTRY: Ingestion / inhalation of components and reaction fume during product specified use, contact with molten metal products.

Note: Molten product will cause skin burns and if in contact with eyes while in a molten state may cause serious damage.

EYE CONTACT: Eye contact with molten metal or reaction by products requires immediate medical attention. Eye exposure to powdered metals should be treated by flushing eyes with large amounts of water from the nasal area outward. Consult a physician if irritation persists.

SKIN CONTACT: In the event of contact with molten metal, slag or any hot equipment, treat effective areas with standard burn protocols. For contact with powdered mixture, wash hands thoroughly.

INGESTION: Immediately rinse mouth and drink plenty of water. If irritation persists, seek medical attention.

INHALATION: For excessive inhalation of dust, fume, remove from exposure, and provide fresh air. If throat irritation persists, seek medical attention.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASHPOINT: Not Available

METHOD USED: Not Applicable

FLAMMABLE LIMITS

UPPER FLAMMABILITY LIMIT (% BY VOLUME): Not applicable

LOWER FLAMMABILITY LIMIT (% BY VOLUME): Not applicable

AUTOIGNITION TEMPERATURE: >1750°F (955°C)



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

SUITABLE EXTINGUISHING MEDIA:

Extinguish with dry sand and/or flood with large amounts of water. The use of hand buckets of water is not suggested. Molten metal contact with water can cause small pockets of superheated steam.

Use fire-extinguishing media appropriate for surrounding materials and localized area.

If shipping and packaging materials are ignited, the use of large amounts of water will mitigate the spread of fire to local areas and should eliminate propagation of the reaction.

SPECIAL FIRE FIGHTING PROCEDURES & PROTECTIVE EQUIPMENT:

Ignition of extremely large quantities of exothermic materials may result in large volumes of dense smoke.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

The material does not self-ignite and is not suspect to shock or vibration. The material requires indirect heating in excess of 1750°F (1000 °C) for reaction to occur.

SPECIFIC HAZARDS IN CASE OF FIRE:

Normal use of this product is done in controlled, limited quantities. Fire hazards are typically associated with surrounding area materials. To avoid collateral fire damage, clear all combustible materials from area where the product is being used.

HAZARDOUS COMBUSTION PRODUCTS:

None

SECTION 6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Personal Protection is described in detail in Section 8

ENVIRONMENTAL PRECAUTIONS:

Caution should be taken to prevent any hot material, reaction byproducts or ancillary equipment from contact with any combustible materials in surrounding areas. Avoid spreading powders or dust in the local areas.

SPILL CONTAINMENT & CLEANUP METHODS/MATERIALS:

Spill Cleanup Methods: Remove any and all sources of ignition. For large spills, use natural bristle brushes and non-sparking utensils to sweep up spilled materials and dispose of in accordance with local regulations.

SECTION 7 HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING AND STORAGE:

Handling

Exothermic welding materials are formulated and designed for use with specific equipment and specific applications. Care should be taken to ensure all components are correct and free of damage to avoid any unnecessary exposure to molten metal and reaction byproducts. Failure to do so can result in personal injury and localized property damage. All product instructions should be followed at all times.

Storage

Exothermic welding materials should always be stored in the original containers in a clean, dry and secure location. Although the product is not sensitive to impact or excessive vibration, to ensure consistent product performance, protects the product from unnecessary abuse.

All products should be stored in accordance with the product labeling and site requirements.



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

These welding materials have no effective shelf life if all storage directions are followed. If there is evidence of package damage or any contamination, the product should not be used and should be discarded in accordance with local regulations.

OTHER PRECAUTIONS (e.g.; Incompatibilities):

Avoid Strong oxidizers, strong acids, and materials not compatible with molten metals.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS/SYSTEM DESIGN INFORMATION:

Use with adequate ventilation.

VENTILATION:

Normal use of this product is in an outdoor well-ventilated condition and would preclude the use of any special respiratory protection. In the event that the product is to be used in a confined space, ensure proper ventilation.

GENERAL INFORMATION:

The personal protection equipment (PPE) identified below is recommended based on potential exposure limits during normal use of the product.

RESPIRATORY PROTECTION:

If local ventilation is not available, a NIOSH approved respirator for dusts and metal fumes should be utilized.

EYE PROTECTION:

Safety glasses or a suitable face shield is recommended as standard eye protection. In addition, the user should avoid any direct eye contact with the intense light from the exothermic reaction.

SKIN PROTECTION:

Special clothing is not required under normal product use. Cotton clothing is recommended to mitigate any garment melting due to contact with hot materials.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

Heat resistant gloves are recommended for handling any and all hot equipment used in the exothermic welding process.

EXPOSURE GUIDELINES & LIMITS:

Particulate not otherwise classified (inhalable) / Respirable particulate not otherwise classified

Component	Chemical Symbol	CAS Number	OSHA PEL	ACGIH TLV
Cuprous Oxide	Cu ₂ O	1317-39-1	0.1 mg/m ³ TWA Fume 1 mg/m ³ TW Dust	0.2 mg/m ³ TWA Fume 1 mg/m ³ TW Dust
Cupric Oxide	CuO	1317-38-0	5 mg/m ³ TWA Fume 15 mg/m ³ Dust	None
Copper	Cu	7440-50-8	0.1 mg/m ³ TWA Fume 1 mg/m ³ TW Dust	0.1 mg/m ³ TWA Fume 1 mg/m ³ TW Dust
Aluminum	Al	7429-90-5	15 mg/m ³ TWA Dust	10 mg/m ³ TWA Dust
Tin	Sn	7440-31-5	2 mg/m ³ TWA	2 mg/m ³ TWA
Fluorspar	CaF ₂	7789-75-5	2.5 mg/m ³ TWA as F	2.5 mg/m ³ TWA as F
Calcium Silicon Alloy	CaSi ₂	12013-55-7	5 mg/m ³ TWA as Respirable Si 15 mg/m ³ Dust as Si	5 mg/m ³ TWA as Respirable Si 15 mg/m ³ Dust as Si

TWA – 8-Hour Time Weighted Average

NE - Not Established

SECTION 9 PHYSICAL / CHEMICAL PROPERTIES

GENERAL INFORMATION:

The following physical and chemical properties should be used as reference for the exothermic welding materials. Slight variation may be evident in color, shape and morphology.

APPEARANCE:

Gray/Silver granular, solid powder mixture

ODOR:

None, odorless

ODOR THRESHOLD:

Not Applicable



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

PHYSICAL STATE:	Solid pH: Not Applicable
BOILING POINT:	Not Applicable
MELTING POINT:	>2000°F (1093°C)
FREEZING POINT:	Not Applicable
VAPOR PRESSURE (mmHg @ 20°C):	Not Applicable
VAPOR DENSITY (AIR = 1):	Not Applicable
VOLATILITY (% by Volume)	Not Applicable
SPECIFIC GRAVITY (H₂O = 1):	5.7
EVAPORATION RATE (Butyl acetate=1):	Not Applicable
SOLUBILITY IN WATER: Insoluble	Not Available
FLASH POINT:	>1750°F (955°C)
AUTO-IGNITION TEMPERATURE:	Not Applicable
LOWER EXPLOSIVE LIMIT (LEL):	Not Applicable
UPPER EXPLOSIVE LIMIT (UEL):	Not Applicable
PARTITION COEFFICIENT:	Not Applicable
VISCOSITY (centipoise @ 25° C):	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Stable under all normal and noted conditions

INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizers, strong acids, and materials not compatible with molten metals.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: None

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Temperatures above ignition point. Indirect heating to temperatures above 1750°F (955°C).

DANGEROUS REACTIONS: Improper preparation of conductors to be welded or molds can result in aggressive reactions. This can be due to moisture or contaminants. All instructions should be followed to ensure proper use of the product.

SECTION 11 TOXICOLOGY INFORMATION

ACUTE TOXICITY (Test Results Basis and Comments):

The information presented below corresponds to the individual components of this product. Toxicity studies have not been performed on the mixture as a whole.

Cuprous oxide LD50

470 mg/kg (oral-rat),

>50,000 mg/m³ (inhalation- rat),

>2,000 mg/kg (dermal- rat)

ROUTES OF ENTRY/EFFECTS OF ACUTE OVEREXPOSURE:

The primary route of entry is inhalation or ingestion of powder or metal fumes. Contact burns from the exothermic reaction, byproducts, or from hot equipment are possible.

Eye Contact: Dust and fume may cause eye irritation.

Skin Contact: Long term exposure to copper containing dusts may result in allergic dermatitis. Molten products from the exothermic reactions may cause severe burns

Ingestion (Swallowing): Significant ingestion of powder mixture may cause gastric distress and nausea.

Inhalation (Breathing): Dust and fumes are an irritant to the upper respiratory tract. Flu like symptoms, “metal fume fever” may occur if inhalation of high concentrations oxide fumes and dusts in the respirable particle size are experienced.



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

SUBCHRONIC/CHRONIC TOXICITY (Test Results and Comments):

IRRITANCY OF PRODUCT: Dust and fume may cause may cause irritation of the eyes, skin, nose, and throat.

SENSITIZATION TO MATERIAL: None known.

CARCINOGENICITY: This product does not include ingredients listed on the following carcinogen lists; IARC,ACGIH, or OSHA.

REPRODUCTIVE TOXICITY:

TERATOGENICITY: None known.

MUTAGENICITY: None known.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known.

SECTION 12 ECOLOGICAL INFORMATION

PERSISTENCE & DEGRADABILITY:

The exothermic mixture is a combination of metals and metal oxides and contains no organic elements. As a result, this product mixture is not biodegradable.

BIO-ACCUMULATIVE POTENTIAL (Including Mobility):

No data available for bio-accumulative potential

AQUATIC TOXICITY (Test Results & Comments):

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cuprous Oxide: EC50 (Daphnia magna, 48 hours): 0.51 mg/l

Additional Information

This product is spread by the handling of the powdered mixture. There is no mobility in the soil.

SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

The byproducts of the exothermic reaction are inert and may be disposed of as non-hazardous waste.

HAZARDOUS WASTE:

Disposal of unused product must be done in accordance with applicable local, state or federal laws. This product contains materials which are subject to reporting requirements of Section 313 of Title III of SARA and 40 CFR 372 and contains materials included on the TSCA inventory list.

SECTION 14 TRANSPORTATION

General Information: This product does not meet any classification that requires special labeling or packaging as formulated or shipped.

GROUND – US-DOT/CAN-TDG/EU-ADR/APEC-ADR: DOT HAZARDOUS MATERIAL

Proper Shipping Name	Not Applicable	ID Number	Not Applicable
Hazard Class	Not Applicable	Labels	
Packing Group	Not Applicable	Placard	NA
Packaging			
Freight Class			



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

AIRCRAFT – ICAO-IATA:

Proper Shipping Name

Hazard Class	Not Applicable	ID Number	Not Applicable
Packing Group	Not Applicable	Labels	
Packaging		Placard	

VESSEL – IMO-IMDG:

Proper Shipping Name

Hazard Class	Not Applicable	ID Number	Not Applicable
Packing Group	Not Applicable	Labels	
Packaging		Location	

SECTION 15 REGULATORY INFORMATION

INVENTORY STATUS:

All components are listed on the TSCA; EINECS/ELINCS; and DSL, unless noted otherwise below.

U.S. FEDERAL REGULATIONS:

TSCA Section 8b – Inventory Status:

All chemicals comprising this product are either exempt or listed on the TSCA Inventory.

TSCA Section 12b – Export Notification:

If the product contains chemicals subject to TSCA Section 12b export notification they are listed below:

<u>Chemical</u>	<u>CAS #</u>
None	N/A

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT)

Chemicals present in the product which could require reporting under the statute:

<u>Chemical</u>	<u>CAS #</u>	<u>% WT</u>
None	N/A	N/A

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

If the product contains chemicals subject to the reporting requirements of Section 313 of SARA Title III, they are listed below.

<u>Chemical</u>	<u>CAS #</u>	<u>% WT</u>
Cuprous Oxide	1317-39-1	<95%
Cupric Oxide	1317-38-0	<10%

CERCLA SECTION 311/312 HAZARD CATEGORIES:

Note that this product is exempt from these regulations.

Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No
Immediate Hazard	No
Delayed Hazard	Yes

STATE REGULATIONS (US):

California Proposition 65 The following chemicals identified to exist in the product as distributed into commerce are known to the State of California to cause cancer, birth defects, or other reproductive harm:



SAFETY DATA SHEET

UltraWeld Exothermic Welding Material

(US, CN, EU Version for International Trade)

Chemical
None

CAS #
N/A

% WT
N/A

California Consumer Product Volatile Organic Compound Emissions

This Product is not regulated as a Consumer Product for purposes of CARB/OTC VOC Regulations, as-sold for the intended purpose and into the industrial/Commercial supply chain.

Other State Regulatory Lists The following chemicals have been identified to exist in the product as distributed into commerce.

Chemical
None

CAS #
N/A

Regulating State
N/A

INTERNATIONAL REGULATIONS (Non-US):

Canadian Domestic Substance List (DSL)

All ingredients remaining in the product as distributed into commerce are included on the Domestic Substances List.

WHMIS Classifications

Not Regulated.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations." NPRI and Ontario Regulation 127/01 This product contains the following chemicals subject to the reporting requirements of Canada

NPRI and/or Ont. Reg. 127/01:

This product contains the following chemicals subject to the reporting requirements of Canada NPRI and/or Ont. Reg. 127/01:

Chemical
Aluminum
Fluorspar

CAS #
7429-90-5
7789-75-5

% WT
<25%
<5%

European Inventory of Existing Commercial Chemical Substances (EINECS)

All ingredients remaining in the product as distributed into commerce are exempt from, or included on, the European Inventory of Existing Commercial Chemical Substances.

European Communities (EC) Hazard Classification:

Prepared with reference to EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830 Please refer to the GHS Classifications and hazard/precaution statements in Section 2.

Additional Information

This product may be regulated under additional regulations and laws not identified above, such as for uses other than described or as-designed/as-intended by the manufacturer, or for distribution into specific domestic destinations.

SECTION 16 OTHER INFORMATION

OTHER INFORMATION

This SDS is provided with the best of our knowledge and is believed to be accurate as of the revision date. The product user should be instructed with correct procedures and read and understand all supplied product information and safety warnings. All procedures should be followed to avoid unnecessary hazards and correct use of the product.

SDS PREPARATION INFORMATION

DATE OF ISSUE: *July 2026*