SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name: CADWELD Electrical Welding Material

Application: Welding material

Container size: -

Supplier:

ERICO Canada Inc.
P.O. Box 170
Mississauga, Ontario
Canada L5M 2B8
Phone: 1-440-248-0100

Responsible for safety data sheet authoring:
SDS_info@dhigroup.com

2. HAZARDS IDENTIFICATION

HMIS Ratings: Health: 1 Fire: 0 Physical Hazard: 0

Physical and Chemical Hazards: Improper use of the product or inadequate preparation of the conductors, moulds or surroundings can result in aggressive reactions. Self-propagating high temperature reaction will occur if heated above ignition temperature. Generates molten metal in excess of 1370ºC, slag and dense, dusty smoke.

Human health: Harmful if swallowed. The molten product can cause serious burns. Inhalation of powder or fumes may cause metal fume fever.
Exposure to reaction by-products: See section 8.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

The product contains: calcium fluoride, Copper, copper alloys.
tin (F20 and XF19)
aluminium-vanadium alloy (F33).

This material is a controlled product under Canadian WHMIS regulations.
The following substances shall be indicated according to legislation:
Dicopper oxide CAS-no. 1317-39-1 : <80 %
Tin CAS-no. 7440-31-5 : <10 %

4. FIRST-AID MEASURES

Molten product will cause skin burns and if in contact with eyes while in a molten state may cause serious damage. Burns (in contact with molten metal, slag or hot equipment): Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

Inhalation: Inhalation of welding fumes: / Dust inhalation: Move into fresh air and keep at rest. In case of persistent throat irritation or coughing: Seek medical attention and take along these instructions.

Skin contact: Remove contaminated clothes and rinse skin thoroughly with water. If material is hot, treat for thermal burns and get immediate medical attention.

Eye contact: The molten product can cause serious burns. Get medical attention immediately!
Dust in the eyes: Do not rub eye. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids widely. If irritation persists: Seek medical attention and bring these instructions.

Ingestion: Immediately rinse mouth and drink plenty of water. Keep person under observation. If person becomes uncomfortable seek hospital and bring these instructions.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Extinguish with dry sand and/or flood with large amounts of water.
Use fire-extinguishing media appropriate for surrounding materials.

Extinguishing media which are not suitable: Hand water buckets or hand storage pumps. Molten metal contact with water can cause small pockets of superheated steam.

Specific hazards: During fire, health hazardous gases may be formed. Ignition temperature: > 950 °C
Ignition of large quantities of exothermic materials may result in large volumes of dense smoke.

Protective equipment for fire-fighters: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of dust. Do not breathe fumes. Avoid contact with skin and eyes. For personal protection, see section 8.

Environmental precautions: Precaution should be taken to prevent hot material and reaction byproducts from contact with combustible materials in surrounding areas. Avoid spreading dust or contaminated materials. Avoid discharge to the aquatic environment. Contact local authorities in case of spillage to drain/aquatic environment.

Methods for cleaning up: Sweep up spilled substance and remove to safe place. For waste disposal, see section 13.

7. HANDLING AND STORAGE

Safe handling advice: Do not breathe fumes. Avoid contact with skin and eyes. Observe good chemical hygiene practices. CADWELD Exothermic Welding Materials are designed for use in CADWELD equipment only. Use of improper or damaged equipment can lead to exposure to molten metal and reaction byproducts.

Technical measures: Work practice should minimize risk of contact.

Technical precautions: Confined space: Local exhaust is recommended.

Technical measures for safe storage: Ensure that the container is undamaged and has a proper label.

Storage conditions: Store in closed original container in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures: Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of inhalation of dust and fumes.

Other provincial OEL's may apply.

Chemical name:	Exposure limits:	Type:	Notes:	References:
Copper dust and mists (as Cu)	1 mg/m³	TWA	-	Al
	2 mg/m³	STEL	15min	
Copper - Dusts and mists, as Cu	1 mg/m³	TWA	-	BC
Copper dust and mists (as copper)	1 mg/m³	TWA	-	On
Copper dust and mists (as copper)	1 mg/m³	TWA	-	Qu
Copper fume	0,2 mg/m³	TWA	-	Al
	0,6 mg/m³	STEL	15min	
Copper - Fume, as Cu	0,2 mg/m³	TWA	-	BC
Copper fume (as copper)	0,2 mg/m³	TWA	-	On
Copper fume (as copper)	0,2 mg/m³	TWA	-	Qu
Aluminum - Metal, total dust	10 mg/m³	TWA	-	BC
Aluminum - Metal, respirable dust	3 mg/m³	TWA	-	BC

Personal protection: Personal protection equipment should be chosen according to the the CEN standards and in collaboration with the supplier of the personal protective equipment.
Use special welding equipment for protection of eyes, skin and respiratory system.

Respiratory equipment: Under normal conditions of use respiration protection should not be required.
When welding: In case of inadequate ventilation and work of long duration or on large surface areas in confined rooms. Use respiratory equipment with particle filter, type P2.

Hand protection: Protective gloves are recommended.

Eye protection: Wear goggles/face shield.

Hygiene measures: Wash hands after handling. Change contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Granular
Colour:	grey - black
Odor:	Odorless
pH:	not relevant
Melting point:	1999°F
Boiling point:	not available
Flash point:	1749°C
Vapor pressure:	not available
Vapour density:	not available
Relative density:	5.5
Solubility:	Insoluble in water
Other data:	Ignition temperature: > 1742 °F

10. STABILITY AND REACTIVITY

Stability:
Stable.
Not sensitive to vibrations, shock or impact and is not subject to spontaneous ignition.

Conditions/ materials to avoid:
Avoid exposure to temperatures above the flash point. (950 °C)
Water, moisture.

Hazardous decomposition products:
None under normal conditions. Polymerization will not occur

11. TOXICOLOGICAL INFORMATION

Inhalation:
Dust may irritate throat and respiratory system and cause coughing. 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:
Dust has an irritating effect on moist skin. Prolonged and/or repeated contact: May cause eczema-like skin disorders (dermatitis).
The molten product can cause serious burns.

Eye contact:
Particles/fumes in the eyes may cause discomfort/irritation.

Ingestion:
Harmful if swallowed.
LD50 (oral, rat): 490 mg/kg (Dicopper oxide CAS-no. 1317-39-1)

Specific effects:
Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases. Copper oxide may by repeated or prolonged inhalation occasionally cause ulceration and perforation of the nasal septum. Long term exposure to copper containing dusts may cause allergic dermatitis.

12. ECOLOGICAL INFORMATION

Mobility: The product is not volatile but may be spread by dust-raising handling.

Degradability: The product solely consists of inorganic compounds which are not biodegradable.

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

Bioaccumulative potential: No data available on bioaccumulation.

Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.
Reacted/Used Product - can be disposed of as a non-hazardous waste.
Unreacted, spilled product - should be cleaned up and disposed of as hazardous waste.

14. TRANSPORT INFORMATION

UN-number: 3077

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Dicopper oxide)

Sea (IMDG):

Class: 9
PG: III
MP: Yes
EmS: F-A , S-F
MFAG: 1

Inland waterways: To be handled locally.

Air (ICAO/IATA):

Class: 9
PG: III

TDG:

Class: -
Packing group: -
Primary risk label: -
Subsidiary risk label: -

15. REGULATORY INFORMATION

Workplace Hazardous Materials Information Systems (WHMIS): This product has been classified in accordance with the hazard criteria of the CPR (Controlled Product Regulations), and the MSDS contains all of the information required by the CPR.

DSL: All chemicals included in the product are DSL listed.
TSCA: All chemicals included in the product are TSCA listed.

WHMIS Classification: Not controlled

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:
Dicopper oxide CAS-no. 1317-39-1
Tin CAS-no. 7440-31-5

HMIS Ratings: Health: 1 Fire: 0 Physical Hazard: 0

State and local regulations may apply.

National regulation:

Department of Justice. CPR – Controlled products Regulations. SOR/88-66, with amendments.
British Columbia: Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, with amendments.
Quebec: Regulation respecting the quality of the work environment (R.R.Q. 1981, S-2.1, r.15), with amendments.
Ontario: Control of Exposure to Biological or Chemical Agents R.R.O. 1990, Reg. 833, with amendments.
Alberta Regulation 393/88 Occupational Health and Safety Act, Chemical Hazards Regulation, with amendments..
Department of Justice. IDL – Ingredient Disclosure List. SOR/88-64, 31 December 1987, with amendments.

16. OTHER INFORMATION

The user must be instructed in the proper work procedure and be familiar with the contents of these instructions.
The following sections contain revisions or new statements: 8

The information on this data sheet represents our current data and is reliable provided that the product is used under the prescribed conditions and in accordance with the application specified on the packaging and/or in the technical guidance literature. Any other use of the product which involves using the product in combination with any other product or any other process is the responsibility of the user.