1. Identification

Product identifier: FurseWELD Exothermic Welding Powder (Starter)

Other means of identification:
- SDS number: SDS-00013

Recommended use: For starting the reaction for exothermic copper to copper and copper to steel joints.

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information:
- Company name: Thomas & Betts Corporation
- Address: 8155 T & B Boulevard, Memphis, TN 38125, USA
- Telephone: 901-252-5000 ext.8324
- E-mail: Not available.
- Emergency phone number: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night +1 703-741-5970

2. Hazard(s) identification

Physical hazards: Flammable solids, Category 1

Health hazards: Not classified.

Environmental hazards:
- Hazardous to the aquatic environment, acute hazard, Category 1
- Hazardous to the aquatic environment, long-term hazard, Category 1

OSHA defined hazards: Not classified.

Label elements:

Signal word: Danger

Hazard statement: Flammable solid. Very toxic to aquatic life with long lasting effects.

Precautionary statement:


Response: In case of fire: Use appropriate media to extinguish. Collect spillage.

Storage: Store away from incompatible materials.

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

Hazard(s) not otherwise classified (HNOC): Exposure to hot material may cause thermal burns.

Supplemental information: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
<td>&lt;=45</td>
</tr>
</tbody>
</table>
The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Rinse with water. Get medical attention if irritation develops and persists.

Eye contact
Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion
Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed
Dusts may irritate the respiratory tract, skin and eyes. Exposure to hot material may cause thermal burns.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
Water spray, fog (flooding amounts). Dry sand.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire. Carbon dioxide (CO2).

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed. Fine particles may form explosive mixtures with air.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
In case of fire and/or explosion do not breathe fumes.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards
Flammable solid.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions
Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Avoid discharge into drains, water courses or onto the ground.
7. Handling and storage

Precautions for safe handling
Minimize dust generation and accumulation. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Copper oxide (CAS 1317-38-0)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td>Dicopper oxide (CAS 1317-39-1)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium (CAS 7429-90-5)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 mg/m³</td>
<td>Welding fume or pyrophoric powder.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td>Total</td>
</tr>
<tr>
<td>Copper oxide (CAS 1317-38-0)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td>Dicopper oxide (CAS 1317-39-1)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
</tbody>
</table>

Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear safety glasses with side shields (or goggles).

Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection
Other
Wear suitable protective clothing.

Respiratory protection
Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.
When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

- Physical state: Solid.
- Form: Fine granules.
- Color: Gray.
- Odor: Odorless.
- Odor threshold: Not available.
- pH: Not available.
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: Not available.
- Flash point: Not available.
- Evaporation rate: Not available.
- Flammability (solid, gas): Flammable solid.

Upper/lower flammability or explosive limits

- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: Not applicable.
Vapor density: Not applicable.
Relative density: 2.5

Solubility(ies)

- Solubility (water): Insoluble in water.
- Partition coefficient (n-octanol/water): Not available.

Auto-ignition temperature: > 1742 °F (> 950 °C)
Decomposition temperature: Not available.
Viscosity: Not applicable.

Other information

- Explosive properties: Not explosive.
- Oxidizing properties: Not oxidizing.

10. Stability and reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Material is stable under normal conditions.

Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

Conditions to avoid

Heat, flames and sparks. Contact with incompatible materials. Dust may form explosive mixture with air.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation: Dust may irritate respiratory system. Prolonged inhalation may be harmful.

Skin contact: Dust or powder may irritate the skin. Exposure to hot material may cause thermal burns.
Eye contact
Dust may irritate the eyes. Exposure to hot material may cause thermal burns.

Ingestion
Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics
Dusts may irritate the respiratory tract, skin and eyes.

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicopper oxide (CAS 1317-39-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>&gt; 2000 mg/kg, 24 hours</td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>2.92 mg/l, 4 hours</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>0.47 g/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation
Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization
Respiratory sensitization
Not a respiratory sensitizer.

Skin sensitization
This product is not expected to cause skin sensitization.

Germ cell mutagenicity
No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity
Not listed.

NTP Report on Carcinogens
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not regulated.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity
Very toxic to aquatic life with long lasting effects.

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.
**Hazardous waste code**
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products**
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging**
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

**DOT**

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3089</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Metal powders, flammable, n.o.s. (Aluminium)</td>
</tr>
</tbody>
</table>

**Transport hazard class(es)**

<table>
<thead>
<tr>
<th>Class</th>
<th>4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsidiary risk</td>
<td>-</td>
</tr>
<tr>
<td>Label(s)</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Packing group**

| II |

**Environmental hazards**

| Marine pollutant | Yes |

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

**Special provisions**

IB8, IP2, IP4, T3, TP33

**Packaging exceptions**

151

**Packaging non bulk**

212

**Packaging bulk**

240

**IATA**

<table>
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</tr>
<tr>
<td>Label(s)</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Packing group**

| II |

**Environmental hazards**

| Marine pollutant | Yes |

**ERG Code**

3L

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3089</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>METAL POWDER, FLAMMABLE, N.O.S. (Aluminium)</td>
</tr>
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</table>

**Transport hazard class(es)**

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<tr>
<td>Label(s)</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Packing group**

| II |

**Environmental hazards**

| Marine pollutant | Yes |

**EmS**

F-G, S-G

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

### 15. Regulatory information

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.


Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)
Copper oxide (CAS 1317-38-0) LISTED
Dicopper oxide (CAS 1317-39-1) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)
Chemical name | CAS number | % by wt.
--- | --- | ---
Aluminium | 7429-90-5 | <=45
Copper oxide | 1317-38-0 | <= 25
Dicopper oxide | 1317-39-1 | <= 25

Other federal regulations
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations
US. Massachusetts RTK - Substance List
Aluminium (CAS 7429-90-5)

US. New Jersey Worker and Community Right-to-Know Act
Aluminium (CAS 7429-90-5)
Copper oxide (CAS 1317-38-0)
Dicopper oxide (CAS 1317-39-1)

US. Pennslyvania Worker and Community Right-to-Know Law
Aluminium (CAS 7429-90-5)

US. Rhode Island RTK
Aluminium (CAS 7429-90-5)
Copper oxide (CAS 1317-38-0)
Dicopper oxide (CAS 1317-39-1)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories
Country(s) or region | Inventory name | On inventory (yes/no)*
--- | --- | ---
Australia | Australian Inventory of Chemical Substances (AICS) | Yes
Canada | Domestic Substances List (DSL) | Yes
Canada | Non-Domestic Substances List (NDSL) | No
China | Inventory of Existing Chemical Substances in China (IECSC) | Yes
Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes
Europe | European List of Notified Chemical Substances (ELINCS) | No
Japan | Inventory of Existing and New Chemical Substances (ENCS) | Yes
Korea | Existing Chemicals List (ECL) | Yes
New Zealand | New Zealand Inventory | Yes
Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes
Country(s) or region | Inventory name | On inventory (yes/no)*
--- | --- | ---
United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes

*A “Yes” indicates this product complies with the inventory requirements administered by the governing country(s). A “No” indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

| Issue date | 30-November-2015 |
| Revision date | 04-May-2016 |
| Revision # | 2 |
| HMIS® ratings | Health: 0 |
| | Flammability: 3 |
| | Physical hazard: 0 |

**NFPA ratings**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
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**Disclaimer**

Thomas & Betts Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.