



### SAFETY DATA SHEET **IGNITER**

## 1. Product and company identification

|                         |   |
|-------------------------|---|
| <b>Product name:</b>    | Igniter   |
| <b>Synonyms:</b>        | Initiator, Portion Igniter, Portion Initiator, Sparkler   |
| <b>Manufacturer:</b>    | ORGO-THERMIT, Inc   |
| <b>Division of:</b>     | THE GOLDSCHMIDT GROUP   |
| <b>Address:</b>         | 3500 Colonial Drive North; Manchester, NJ 08759   |
| <b>Emergency phone:</b> | CHEMTREC (Assistance 24 hours / 7 days a week)<br>Toll Free: 1-800-424-9300<br>Local: +1-703-527-3887 |
| <b>Other calls:</b>     | (732) 657-5781  |
| <b>Fax:</b>             | (732) 657-5899  |
| <b>Product use:</b>     | Used to initiate alumino-thermic reaction for in-situ rail track welding.                             |

## 2. Hazards identification

### Hazard classification:

The product as shipped is considered an explosive.

### Signal word:

WARNING

### Hazard statement:

H242: Heating may cause a fire.

H261: In contact with water releases flammable gas.

H302+H332: Harmful if swallowed or if inhaled.

### Pictograms:



### Precautionary statement:

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.

P271: Use only outdoors or in a well-ventilated area.

P283: Wear fire/flame resistant/retardant clothing.

### Other hazard information:

Substance or article designated as USDOT Compatibility Group 1.4S are packed or designed so that any

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hazardous effects arising from accidental functioning are limited to the extent that they do not significantly hinder or prohibit firefighting or other emergency response efforts in the immediate vicinity of the package.

Once ignited, smoke may be harmful if inhaled. Smoke may irritate the eyes, skin, and respiratory tract. Molten material may cause thermal burns. Molten steel is hazardous.

### 3. Composition/information on ingredients

The section lists the ingredients contained in the product as shipped. The item is a mixture of Aluminum, Barium Nitrate, and Iron Oxide with a dextrin binder formed on a copper plated, steel wire. This product is used to ignite Thermit® Welding Powder initiating the Thermit® reaction. The actual weight percentages of ingredients are considered trade secrets; therefore, values are not included in the table below.

| Ingredient     | Cas. No.   | % WT        |
|----------------|------------|-------------|
| Barium Nitrate | 10022-31-8 | proprietary |
| Aluminum       | 7429-90-5  | proprietary |
| Iron Oxide     | 1309-37-1  | proprietary |
| Dextrin        | 9004-53-9  | proprietary |
| Copper         | 7440-50-8  | proprietary |
| Mild Steel     | 7439-89-6  | proprietary |

### 4. First aid measures

**Eye contact:**

Dust or particulates may cause irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes created when the Igniter is ignited may be irritating. Bright light from the igniter and the Thermit® reaction may cause corneal burns.

In case of overexposure to dust or fumes, immediately flush eye with plenty of water for at least 15 minutes; occasionally lifting the eyelids. Check for and remove contact lenses; continue flushing the eyes. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

**Skin contact:**

Dust or particulates may cause irritation; symptoms include redness, itching and pain. Best practice is to keep exposure to a minimum and wear glove. Contact with the burning igniter will cause thermal burns.

In case of overexposure to dust or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, cover the burn with clean, dry bandage and seek immediate medical attention.

**Ingestion:**

One ingredient in this product, barium nitrate, is considered toxic and extremely hazardous in the case of ingestion. May cause tightness of the muscles of the face and neck, vomiting, diarrhea, abdominal pain, muscular tremors, kidney damage, weakness, laboured breathing, cardiac irregularity, convulsions, and

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death from cardiac and respiratory failure.

Get medical attention immediately. Induce vomiting only if directed by a medical professional. After vomiting, a mixture of 1 tablespoon of sodium or magnesium sulphate (Epsom salts) dissolved in 8 oz. of water may be indicated to precipitate the barium as the nontoxic and insoluble barium sulphate.

**Inhalation:**

Dust, fumes, and smoke may cause irritation of the nose, throat, and lungs. Symptoms include coughing and shortness of breath. Systemic poisoning may occur with symptoms like those of ingestion.

In case of overexposure to dust or fumes, move to fresh air. Loosen tight clothing such as collar, tie, belt, or waistband. If not breathing, begin rescue breathing. If breathing is difficult, give oxygen if qualified to do so. Any breathing difficulty should be evaluated by a medical professional.

## 5. Firefighting measures

**Extinguishing media:**

Do not use water, carbon dioxide, or foam. Metal dust fires need to be smothered with sand or inert dry powder. Use a dry chemical or dry silica sand to extinguish fire. Contact professional firefighters. If it's not possible to safely extinguish the fire, withdrawal from area, protect surroundings, and allow fire to burn itself out.

**Special firefighting procedures:**

Firefighters should wear full firefighting turn-out gear and respiratory protection (self-contained breathing apparatus). This solid mixture becomes a fire hazard if exposed to temperatures above 570 °F/300 °C.

**Unusual fire and explosion hazards:**

After ignition, the chemical reaction cannot be halted. May burn rapidly with flare burning effect. Burns at high temperatures. Classification C explosive Ex-8903001; UN 0454, Class 1.4S; considered an explosive with no significant blast hazard.

**Hazardous decomposition products:**

When heated to decomposition, acid fumes are emitted. Do not use water or foam, as generation of explosive hydrogen may result. Do not release runoff from fire control methods to sewers or waterways.

## 6. Accidental release measures

Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Sweep up spill and place in sealed bag or container for disposal. Avoid generation of dust cloud. Avoid inhalation. Use proper personal protective equipment as indicated in Section 8.

## 7. Handling and storage

**Handling:**

Do not use material that has been wet for rail welding. Wet igniters could react violently. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Minimize dust generation and accumulation. Avoid inhalation

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and ingestion. Ingestion could be fatal!

**Storage:**

Store in a cool, dry, well ventilated, and locked storeroom away from incompatible materials. Avoid proximity of fire or flame. Keep away from moisture. Preferred storage conditions are 46 – 86 °F/8 – 30 °C with 75 % relative humidity. Shelf life is indefinite if stored properly.

**8. Exposure controls/personal protection**

| <b>Ingredient</b> | <b>ACGIH TLV</b>      | <b>OSHA PEL</b>  | <b>NIOSH</b>   |
|-------------------|-----------------------|--|--|
| Barium Nitrate    | Not available         | 0.5 mg/m <sup>3</sup>                                      | 0.5 mg/m <sup>3</sup>                                      |
| Aluminum          | 1 mg/m <sup>3</sup>   | 15 mg/m <sup>3</sup> (total)<br>5 mg/m <sup>3</sup> (resp) | 10 mg/m <sup>3</sup> (total)<br>5 mg/m <sup>3</sup> (resp) |
| Iron Oxide        | 5 mg/m <sup>3</sup>   | 15 mg/m <sup>3</sup> (total)<br>5 mg/m <sup>3</sup> (resp) | <10 mg/m <sup>3</sup>                                      |
| Copper            | 0.2 mg/m <sup>3</sup> | 1 mg/m <sup>3</sup>  | 1 mg/m <sup>3</sup>  |

**Engineering controls:**

When using igniters with Thermit® Welding Powder, preventive fire protection measures should be employed to protect surrounding areas from catching fire. Depending on proximity and wind conditions, sparks could catch nearby items on fire. It is recommended to keep a chemical fire extinguisher and water supply nearby.

**Ventilation:**

Use local exhaust ventilation, or other engineering controls, to keep airborne levels below the recommended exposure limits.

**Respiratory protection:**

Use a NIOSH/MSHA approved respirator with a dust cartridge if exposure limits are exceeded, or if irritation or other symptoms are experienced.

**Eye protection:**

Safety glasses should be used when handling the igniters. When igniting Thermit® Welding Powder, shade 5 welding eye protection is recommended until the welding process is completed.

**Skin protection:**

Wear appropriate protective clothing, shoes, and gloves to prevent skin exposure or thermal burns. When using Igniters and Thermit® Welding Powder, protect skin from high temperatures. Welding gloves, jackets, pants, bibs, or aprons may be used during the welding process.

**Other protective clothing or equipment**

Face shields and hard hats may be used to protect users from sparks during the welding and grinding processes.

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|   |   |
|---|---|
| <b>Appearance:</b>                            | Mixture of grey-silver material mounted on a metal wire |
| <b>Odour:</b>                                 | Odourless   |
| <b>Physical state:</b>                        | Solid   |
| <b>pH as supplied:</b>                        | Not applicable  |
| <b>Boiling point:</b>                         | Not applicable  |
| <b>Melting point:</b>                         | Not applicable  |
| <b>Freezing point:</b>                        | Not applicable  |
| <b>Vapor pressure (mmHg):</b>                 | Not applicable  |
| <b>Vapor density (air = 1):</b>               | Not applicable  |
| <b>Specific gravity (H<sub>2</sub>O = 1):</b> | >1 g/mL @ 20 °C   |
| <b>Evaporation rate:</b>                      | Not applicable  |
| <b>Solubility in water:</b>                   | Insoluble   |
| <b>Weight percent solids:</b>                 | 100 % Solids  |
| <b>Percent volatile:</b>                      | Not available   |
| <b>Molecular weight:</b>                      | Not available   |
| <b>Viscosity:</b>                             | Not applicable  |
| <b>Flammable limits:</b>                      | Not applicable  |
| <b>Flash point:</b>                           | Not applicable  |
| <b>Autoignition temperature:</b>              | >570 °F/300 °C  |

**10. Stability and reactivity**

|  |  |
|--|--|
| <b>Stability:</b>                              | <input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE   |
| <b>Conditions to avoid (stability):</b>        | This solid mixture will ignite if exposed to temperatures above 570 °F/300 °C. |
| <b>Incompatibility (material to avoid):</b>    | Avoid water/moisture.  |
| <b>Hazardous decomposition or by-products:</b> | Can produce hydrogen when exposed to caustic solutions or acid.                |
| <b>Hazardous polymerization:</b>               | Will not occur.  |
| <b>Conditions to avoid (polymerization):</b>   | Not applicable   |

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## 11. Toxicological information

**Routes of entry:**

Once ignited, the product releases smoke that may be irritating to the eye and lungs if inhaled.

**Chronic effects:**

None expected

**Sensitization:**

None expected

**Toxicity to animals:**

There is no toxicological information for this product.

Igniters or the ingredients are not listed in the National Toxicology Program Report on Carcinogens or as a potential carcinogen by OSHA and have not been identified to be a potential carcinogen in the International Agency for Research on Cancer Monographs.

## 12. Ecological information

**Ecotoxicity (aquatic and terrestrial):**

Ecological impact has not been determined.

## 13. Disposal considerations

**Waste disposal method:**

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulation.

Place in pile of dry clean sand and ignite in well ventilated area.

**RCRA hazard class:**

May exhibit characteristics of a reactive hazardous waste (D003) when wet.

## 14. Transport information

**U.S. Department of Transportation**

|                       |   |
|-----------------------|---|
| Proper shipping name: | IGNITER   |
| Hazard class:         | 1.4 S – CLASS 85  |
| ID number:            | 64300   |
| Packing group:        | II  |
| Label statements:     | UN 0454, IGNITER, 1.4 S, PGII<br>ITEM#64300 CLASS 85 HAZMAT |



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**Water transportation**

|                       |   |
|-----------------------|---|
| Proper shipping name: | IGNITER   |
| Hazard class:         | 1.4 S – CLASS 85  |
| ID number:            | 64300   |
| Packing group:        | II  |
| Label statements:     | UN 0454, IGNITER, 1.4 S, PGII<br>ITEM#64300 CLASS 85 HAZMAT |

**Air transportation**

|                       |                |
|-----------------------|----------------|
| Proper shipping name: | NOT APPLICABLE |
| Hazard class:         | NOT APPLICABLE |
| ID number:            | NOT APPLICABLE |
| Packing group:        | NOT APPLICABLE |
| Label statements:     | NOT APPLICABLE |

**Canada TDG:**

UN 0325, Class 1.4 G; Canada Class 7, Div. 2, Sub Div.4

## 15. Regulatory information

**U.S. federal regulations**

**EPCRA Section 302 – Extremely Hazardous Substances:**

None listed

**EPCRA Section 304 – Extremely Hazardous Substances, Reportable Quantity:**

None listed

**CERCLA - Hazardous Substances:**

CAS # 7440-50-8, Copper is in the list (5,000 pounds).

**EPCRA Section 313 – Toxic Chemicals:**

CAS # 7429-90-5, Aluminum, is on the list as a fume or dust.

CAS # 7440-50-8, Copper is on the list.

**CAA 112(r) - Regulated Chemicals for Accidental Release Prevention:**

None listed

**State regulations:**

**New Jersey Right to Know Hazardous Substance List:**

CAS # 7429-90-5, Aluminum, is on the list.

CAS # 1309-37-1, Iron Oxide, is on the list.

CAS # 10022-31-8, Barium Nitrate, is on the list.

CAS # 7440-50-8, Copper, is on the list.

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**California Proposition 65 List of Chemicals:**

None listed

**International regulations:**

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations. The Safety Data Sheet contains all the information required by the Controlled Products Regulations.

**16. Other information**

**NFPA hazard classification**

|                      |  |
|----------------------|--|
| <b>Health:</b>       | 2  |
| <b>Flammability:</b> | 1  |
| <b>Reactivity:</b>   | 1  |
| <b>Other:</b>        | Use no water.  |
| <b>Note:</b>         | NFPA classifications are 0 – 4, with 4 as the most severe. |



**HMIS hazard classification**

|                      |  |
|----------------------|--|
| <b>Health:</b>       | 2  |
| <b>Flammability:</b> | 1  |
| <b>Reactivity:</b>   | 1  |
| <b>Other:</b>        | Safety glasses, gloves, dust respirator recommended.       |
| <b>Note:</b>         | HMIS classifications are 0 – 4, with 4 as the most severe. |

| HMIS         |   |
|--------------|---|
| HEALTH       | 2 |
| FLAMMABILITY | 1 |
| REACTIVITY   | 1 |
| PPE          | E |

**Disclaimer:**

Orgo-Thermit Inc. believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any process. Because safety standards and regulations are subject to change and because Orgo-Thermit Inc. has no continuing control over such changes; those handling, storing, or using the material should satisfy themselves that they have current information regarding the way the material is handled, stored, used, or disposed of, and that the same is done in accordance with federal, state, and local law. Orgo-Thermit Inc. makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein, or with respect to fitness for any particular use.