

# SAFETY DATA SHEET

Degradable Crucible



## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Degradable Crucible  
**SYNONYMS:** One Shot Crucible, Disposable Crucible

**MANUFACTURER:** **ORGO-THERMIT, Inc.**  
**DIVISION:** **A Member of the Goldschmidt-Thermit-Group**  
**ADDRESS:** 3500 Colonial Drive North; Manchester, NJ 08759

**EMERGENCY PHONE:** (800) 424-9300 (CHEMTREC USA Assistance)  
(613) 424-6666 (CANUTEC Canada Assistance)

**OTHER CALLS:** (732) 657-5781  
**FAX:** (732) 657-5899

**CHEMICAL NAME:** Silica Dioxide  
**CHEMICAL FAMILY:** Metal Oxides  
**CHEMICAL FORMULA:** SiO<sub>2</sub>

**PRODUCT USE:** A resin bonded refractory vessel to contain and hold the liquid Thermit<sup>®</sup> steel and slag after the Thermit<sup>®</sup> reaction for a limited period of time.

**PREPARED BY:** Orgo-Thermit, Inc.

### SECTION 1 NOTES:

A refractory crucible made from resin bonded silica oxide.

## SECTION 2: HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

Long term exposure to the product is not thought to produce chronic effects adverse to the health, as long as the airborne levels are kept below the recommended exposure limits. Nevertheless, exposure by all routes should be minimized. Molten material may cause thermal burns. Molten steel is hazardous.

### MATERIAL DESCRIPTION:

The product shipped will consist entirely of resin bonded silica refractory with little or no respirable dust present.

### SECTION 2 NOTES:

This product has the potential to release formaldehyde vapor from decomposition during metal pouring.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% WT
Crystalline Silica	14808-60-7	proprietary
Ethanol 2-phenoxy, 1.0-5.0%	122-99-6	proprietary
Phenol, 1.0-5.0%	108-95-2	proprietary
Formaldehyde, 0.1-1.0%	50-00-0	proprietary
Methyl Formate	107-31-3	proprietary
Methanol	67-56-1	proprietary

### SECTION 3 NOTES:

Weight percentages are considered trade secrets, and thus, are not disclosed.

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## SECTION 4: FIRST AID MEASURES

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### POTENTIAL HEALTH EFFECTS

#### **EYE CONTACT:**

Dust or particulates may cause irritation including pain, tearing, redness, and visual disturbance. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material will cause thermal burns.

#### **SKIN CONTACT:**

Dust or particulates may cause irritation due to abrasion. Some components in this product are capable of causing an allergic reaction, possibly resulting in itching and skin eruptions. Diseases of the skin, such as dermatitis, may be aggravated by exposure. Contact with heated material will cause thermal burns.

#### **INGESTION:**

May cause severe and permanent damage to the digestive tract. Toxicological properties of this substance have not been fully investigated.

#### **INHALATION:**

Dust may cause irritation of the nose, throat, and lungs. Other symptoms include coughing, shortness of breath, wheezing, headache, drowsiness, dizziness, nausea, vomiting, muscle ache, pain, twitching, and convulsions. Best practice is to limit exposure, as crystalline silica, formaldehyde, and phenol pose considerable hazards with respect to long term inhalation.

### FIRST AID TREATMENT

#### **EYE CONTACT:**

In case of overexposure to dust or fumes, immediately flush eye with plenty of water for at least 30 minutes; occasionally lifting the eyelids. Remove contact lenses if they are present; continue flushing with water. Do not allow victim to rub eyes nor keep eyes closed. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

#### **SKIN CONTACT:**

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, seek immediate medical attention.

#### **INGESTION:**

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical attention.

#### **INHALATION:**

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, give artificial respiration. If breathing is difficult, give oxygen. Any breathing difficulty should be evaluated by a medical professional.

### NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

Treat symptomatically and supportively.

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## SECTION 5: FIRE-FIGHTING MEASURES

**FLAMMABLE LIMITS:** Not available.

**FLASH POINT:** Not available.

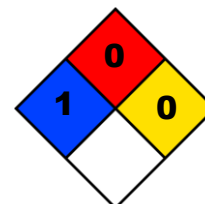
**AUTOIGNITION TEMPERATURE:** Not available.

**NFPA HAZARD CLASSIFICATION**

**HEALTH:** 1                      **FLAMMABILITY:** 0                      **REACTIVITY:** 0

**OTHER:** None

**Note:** NFPA classifications are 0 - 4, with 4 as the most severe.



**HMIS HAZARD CLASSIFICATION**

**HEALTH:** 1                      **FLAMMABILITY:** 0                      **REACTIVITY:** 0

**PROTECTION:** Safety glasses, gloves, dust respirator recommended.

**Note:** HMIS classifications are 0 - 4, with 4 as the most severe.

HMIS	
<b>HEALTH</b>	<b>1</b>
<b>FLAMMABILITY</b>	<b>0</b>
<b>REACTIVITY</b>	<b>0</b>
<b>PPE</b>	<b>E</b>

**EXTINGUISHING MEDIA:**

Noncombustible solid. Product is not flammable, combustible, nor explosive. Use extinguishing media appropriate for surrounding fire.

**SPECIAL FIRE FIGHTING PROCEDURES:**

Product itself does not burn. As with any fire, Fire fighters should wear full firefighting turn-out gear and respiratory protection (self-contained breathing apparatus).

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Product contains a resin that if allowed to accumulate as dust on floors or machinery, could create a combustible dust explosion hazard.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

This product has the potential to release formaldehyde vapor from decomposition during metal pouring.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**ACCIDENTAL RELEASE MEASURES:**

Sweep material into a disposal container. Avoid generation of dust cloud. Avoid inhalation. Use dustless and/or non-dust generating methods for clean up, such as vacuum. Prevent entry into bodies of water.

**SECTION 6 NOTES:**

Use proper personal protective equipment as indicated in Section 8. While cleaning, use a NIOSH/MSHA approved respirator for dust.

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## SECTION 7: HANDLING AND STORAGE

### HANDLING:

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 and ingestion.

### STORAGE:

Store in a cool, dry area away from incompatible substances. Keep away from moisture, humidity, and frost. Do not store in direct sunlight.

### OTHER PRECAUTIONS:

Keep crucible dry at all times before and during use. DO NOT USE material that got wet for rail welding. While water does not affect the degradable crucible itself, the addition of water to the Thermit<sup>®</sup> reaction can result in violent reactions. Since the intended use for the degradable crucible is to contain the Thermit<sup>®</sup> reaction, it is recommended to dispose of wet materials.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT	ACGIH TLV	OSHA PEL	NIOSH
Crystalline Silica	0.025 mg / m <sup>3</sup>	0.10 mg / m <sup>3</sup> (total)	0.05 mg / m <sup>3</sup>
Phenol, 1.0-5.0%	5 ppm	5 ppm (19 mg / m <sup>3</sup> )	5 ppm (19 mg / m <sup>3</sup> )
Formaldehyde, 0.1-1.0%	0.3 ppm	0.75 ppm	0.016 ppm
Methyl Formate	100 ppm	100 ppm (250 mg / m <sup>3</sup> )	100 ppm (250 mg / m <sup>3</sup> )
Methanol	200 ppm	200 ppm (260 mg / m <sup>3</sup> )	200 ppm (260 mg / m <sup>3</sup> )

### ENGINEERING CONTROLS:

When using Thermit<sup>®</sup> Welding Powder in a Degradable Crucible, 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. Hazardous emissions are normally generated when cores are exposed to molten metal due to the thermal decomposition of the binder during pouring, cooling, and shakeout operations. These emissions can reach hazardous levels and may include carbon monoxide, carbon dioxide, benzene, aldehydes (including formaldehyde), phenol, hydrogen cyanide, ammonia, benzo pyrene, and other organic compounds. Oxygen may be deficient in pouring, cooling, and shakeout areas. Hazardous particulate matter including silica is normally generated at hazardous concentrations at pouring, cooling, and shakeout operations. All of the emissions pose significant hazards and it is vitally important to utilize proper controls to protect the user from these emissions.

### RESPIRATORY PROTECTION:

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

### EYE PROTECTION:

Safety glasses should be used when handling this product. When igniting Thermit<sup>®</sup> Welding Powder in a Degradable Crucible, 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. When igniting Thermit<sup>®</sup> Welding Powder in a Degradable Crucible, protect skin from high temperatures. Welding gloves, jackets, pants, bibs, or aprons are recommended for use during the welding process.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (cont.)

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### OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

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

### SECTION 8 NOTES:

Information concerning hazardous exposure limits has been compiled from sources considered to be reliable and is accurate and reputable to the best of our knowledge and belief but is not guaranteed to be so.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**APPEARANCE:** Off-white to pink sand core  
**ODOR:** Odorless  
**PHYSICAL STATE:** Solid

**pH AS SUPPLIED:** Not Available  
**BOILING POINT:** Not Available  
**MELTING POINT:** Not Available  
**FREEZING POINT:** Not Available

**VAPOR PRESSURE (mmHg):** Not Available  
**VAPOR DENSITY (AIR = 1):** Not Available  
**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** 2.65 g/mL @ 20°C

**EVAPORATION RATE:** Not Available  
**SOLUBILITY IN WATER:** Very slightly soluble

**WEIGHT PERCENT SOLIDS:** 100% Solids  
**PERCENT VOLATILE:** Not Available  
**MOLECULAR WEIGHT:** Not Available  
**VISCOSITY:** Not Available

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## SECTION 10: STABILITY AND REACTIVITY

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**STABILITY:**  **STABLE**  **UNSTABLE**

**CONDITIONS TO AVOID (STABILITY):** Does not spontaneously ignite. However, product contains a resin that if allowed to accumulate as dust on floors or machinery, could create a combustible dust explosion hazard.

**INCOMPATIBILITY (MATERIAL TO AVOID):** Powerful oxidizers (ie: fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, hydrogen peroxide, acetylene, ammonia)

**HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:** Silica will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrafluoride. This product has the potential to release formaldehyde vapor from decomposition.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**CONDITIONS TO AVOID (POLYMERIZATION):** Not applicable.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### ROUTES OF ENTRY:

Crystalline silica, one of the components of this product, is a non-toxic material having no known adverse health effects from ingestion. It does pose considerable hazards with respect to long term inhalation. Formaldehyde and Phenol, additional components of this product, also pose considerable hazards with respect to inhalation when using this product.

### CHRONIC EFFECTS ON HUMANS:

Inhalation of respirable crystalline silica may result in silicosis. The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs capability to take in oxygen. There is no cure for silicosis. Silica, Crystalline (Respirable Size) is listed on the National Toxicology Program Report on Carcinogens and on the International Agency Research on Cancer Monographs as a Group 1 human lung carcinogen. The IARC has determined from a review of human and animal studies that there is sufficient evidence for the carcinogenicity of crystalline silica.

Inhalation of formaldehyde may result in increased risk of nasopharyngeal cancer. Formaldehyde is listed on the National Toxicology Program Report on Carcinogens and on the International Agency Research on Cancer Monographs as a Group 1 carcinogen agent. The IARC has determined from a review of human and animal studies that there is sufficient evidence for the carcinogenicity of formaldehyde.

Phenol is listed on the National Toxicology Program Report on Carcinogens and on the International Agency Research on Cancer Monographs as a Group 3 agent. The IARC has determined from a review of human and animal studies that there is inadequate evidence for the carcinogenicity of phenol. However, leukemia and lung cancer have been reported in some findings.

### OTHER TOXIC EFFECTS ON HUMANS:

The substance can be slightly hazardous in case of skin contact (irritant). Material can be irritating to mucous membranes and upper respiratory tract.

### TOXICITY TO ANIMALS:

Silica sand has caused cancer in animals with the target organ being the lungs. Formaldehyde has caused cancer in animals with the target organs being those of the respiratory system. While Phenol studies with animals have not revealed sufficient evidence of carcinogenicity, leukemia and lung cancer has been reported in some findings.

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## SECTION 12: ECOLOGICAL INFORMATION

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**ECOTOXICITY (AQUATIC AND TERRESTIAL):** Ecological impact has not been determined.

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## SECTION 13: DISPOSAL CONSIDERATIONS

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### 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. It is the responsibility of the user to dispose of the material in the proper manner.

### RCRA HAZARD CLASS:

- CAS # 108-95-2, Phenol, is on the list (U188).
- CAS # 50-00-0, Formaldehyde, is on the list (U122).
- CAS # 67-56-1, Methanol, is on the list (U154).

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## SECTION 14: TRANSPORT INFORMATION

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### U.S. DEPARTMENT OF TRANSPORTATION

**PROPER SHIPPING NAME:** DEGRADABLE CRUCIBLE  
**HAZARD CLASS:** NOT APPLICABLE  
**ID NUMBER:** 186630  
**PACKING GROUP:** NOT APPLICABLE  
**LABEL STATEMENT:** ITEM#186630 CLASS 55

### WATER TRANSPORTATION

**PROPER SHIPPING NAME:** DEGRADABLE CRUCIBLE  
**HAZARD CLASS:** NOT APPLICABLE  
**ID NUMBER:** 186630  
**PACKING GROUP:** NOT APPLICABLE  
**LABEL STATEMENTS:** ITEM#186630 CLASS 55

### AIR TRANSPORTATION

**PROPER SHIPPING NAME:** DEGRADABLE CRUCIBLE  
**HAZARD CLASS:** NOT APPLICABLE  
**ID NUMBER:** 186630  
**PACKING GROUP:** NOT APPLICABLE  
**LABEL STATEMENTS:** ITEM#186630 CLASS 55

**CANADA TDG:** Not regulated

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## SECTION 15: REGULATORY INFORMATION

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### U.S. FEDERAL REGULATIONS

**EPCRA Section 302 – Extremely Hazardous Substances, Threshold Planning Quantity:**

CAS # 108-95-2, Phenol, is on the list (10,000 pounds).

CAS # 50-00-0, Formaldehyde, is on the list (500 pounds).

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

CAS # 108-95-2, Phenol, is on the list (1,000 pounds).

CAS # 50-00-0, Formaldehyde, is on the list (100 pounds).

**CERCLA - Hazardous Substances:**

CAS # 108-95-2, Phenol, is on the list (1,000 pounds).

CAS # 50-00-0, Formaldehyde, is on the list (100 pounds).

CAS # 67-56-1, Methanol, is on the list (5,000 pounds).

**EPCRA Section 313 – Toxic Chemicals:**

CAS # 108-95-2, Phenol, is on the list.

CAS # 67-56-1, Methanol, is on the list.

CAS # 50-00-0, Formaldehyde, is on the list.

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

CAS # 50-00-0, Formaldehyde, is on the list (15,000 pounds).

CAS # 107-31-3, Methyl Formate, is on the list (10,000 pounds).

**EPA TSCA Section 8(b) – Chemical Inventory:**

CAS # 14808-60-7, Quartz (SiO<sub>2</sub>), is on the list.

CAS # 108-95-2, Phenol, is on the list.

CAS # 50-00-0, Formaldehyde, is on the list.

CAS # 67-56-1, Methanol, is on the list.

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## SECTION 15: REGULATORY INFORMATION (cont.)

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### STATE REGULATIONS:

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

CAS # 14808-60-7, Silica - Quartz, is on the list.

CAS # 108-95-2, Phenol, is on the list.

CAS # 50-00-0, Formaldehyde, is on the list.

CAS # 107-31-3, Methyl Formate, is on the list.

CAS # 67-56-1, Methanol, is on the list.

#### **California Proposition 65 List of Chemicals:**

Crystalline silica is on the list.

CAS # 50-00-0, Formaldehyde, is on the list.

CAS # 67-56-1, Methanol, is on the list.

### 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.

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## SECTION 16: OTHER INFORMATION

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**PREPARATION INFORMATION:** Last revised October 24, 2013.

### **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 particular process. Because safety standards and regulations are subject to change and because Orgo-Thermit has no continuing control over such changes; those handling, storing, or using the material should satisfy themselves that they have current information regarding the particular 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.*