



# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Exothermic Hot Tops  
**Recommended use** For Industrial Use Only. Ingot casting hot top board.  
**Recommended restrictions** Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

## Manufacturer/Supplier information

Company name: FRC Global  
Address: 1000 N. West St.  
Suite 1200 #3008  
Wilmington, DE 19801  
Product Support/Technical Services  
Phone: (514) 931-5711  
Website [www.FRCglobal.com](http://www.FRCglobal.com)

Emergency telephone number: Corporate Office: (514) 931-5711  
Technical Services: (514) 931-5711  
Contact E-Mail: [LadleDr@FRCglobal.com](mailto:LadleDr@FRCglobal.com)

## 2. Hazard(s) identification

**Classification according to Regulation (EC) No 1272/2008 [CPL/GHS];**  
Flammable Solid Category, H228  
Skin Sensitivity Category 1, H317  
Specific Target Organ Toxicity (Repeated Exposure)  
Category 1, H372

### Label Elements



**Signal word**

**Hazard Statements**

Danger

Flammable solid.

Flammable liquid and vapor.

May cause an allergic skin reaction.

Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statements**

Do not breathe dust/fumes/gas/mist/vapors/spray.

Wash hands thoroughly after handling.

**Hazard(s) not otherwise  
Supplemental information**

Do not eat, drink, or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.  
If inhaled: remove the person to fresh air and keep comfortable for breathing.  
Get medical advice/attention if you feel unwell.  
Specific treatment (see health care instructions on label)  
Dispose of contents/containers to an approved waste disposal plant.  
No data available.  
Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

### 3. Composition/information on ingredients

**Substances** Not applicable  
**Mixtures** This product is a mixture.  
**Hazardous ingredients**

Chemical Name	Classification	CAS Number	%
Cristobalite	STOT RE 1, H372	14464-46-1	60-80
Hexamine	Flammable solid, 2-H228 Skin Sens. 1-H317	100-97-0	2.7-3.6
Formaldehyde	Carcinogenic, 2-H351 Acute Tox. 3-H301 Acute Tox. 3-H311 Acute Tox. 3-H331 Skin Irrit. 1B-H314 Skin Sens. 1-H317	50-00-0	0.06-0.3
Cryolite	Acute Tox. 4, H332 STOT RE 1, H372 Aquatic Chronic 1, H411	15096-52-3	1-5

**Additional information:** See Section 16 or the full text of the R phases or H statements declared above.

### 4. First-aid measures

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous areas.

**Inhalation**

Remove from exposure and provide fresh air for the victim. In case of difficulty of inhalation, seek medical advice immediately.

**Skin contact**

Wash off immediately with pH-neutral soap and plenty of water. Get rid of dirty clothes. Get medical attention if

irritation persists. Wash off dirty clothes before using them again.

**Eye contact**

Check for and remove any contact lenses. Rinse out with water with the eyelid held wide open for a minimum of 15 minutes. Cold water can be used but warm water is recommended. Get medical attention if irritation persists.

**Ingestion**

Do NOT induce vomiting unless directed to do so by medical personnel; call for medical help. Never give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed**

No data available.

**Indication of immediate medical attention and special treatment needed**

Act by following the symptoms mentioned in section 4.1.

## 5. Fire-fighting measures

**Suitable extinguishing media** This product is not flammable or combustible. Use any extinguishing media appropriate for the surrounding fires.

**Unsuitable extinguishing media**

Not available.

**Specific hazards arising from the substance or mixture**

In case of decomposition, silicon dioxide (SiO<sub>2</sub>), metal oxides, and toxic or irritating gases may occur. Powders may cause explosions in the presence of ignition.

**Advice for firefighters**

As in any fire, NSHA, NIOSH approved self-contained breathing apparatus (SCBA) and full protective gear should be worn. Avoid the generation of dust.

## 6. Accidental release measures

**Personal precautions, protective equipment, and emergency procedures**

**For non-emergency personnel**

Ensure adequate ventilation.

Keep dust levels to a minimum.

Keep unprotected people away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8)

Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, and wear suitable protective equipment (see section 8).

Avoid humidification.

**For emergency responders**

Keep dust levels to a minimum.

Ensure adequate ventilation.

Keep unprotected people away.

Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).

Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, and wear suitable protective equipment (see section 8).  
Avoid humidification.

#### **Environmental precautions**

Contain the spillage if safe to do so. Cover the area if possible, to avoid unnecessary dust hazards. Avoid uncontrolled spills on watercourses and drains. Any large spillage into watercourses must be alerted to the Environment Agency or other regulatory body.

#### **Methods and material for containment and cleaning up**

Collect mechanically and/or by flushing with water. Avoid dry sweeping. Use a water sprayer or ventilated vacuum system to prevent dust information.

#### **Reference to other sections**

For more information on exposure controls/personal protection or disposal considerations, see sections 8 and 13 and the Annex of this safety data sheet.

## **7. Handling and storage**

### **Precautions for safe handling**

#### **Protective measures**

Avoid dust formation. Keep away from materials that may cause heat, flames, or ignition. Do not smoke in the area. Keep in a cool, well-ventilated dry area. Wear protective equipment (refer to section 8 of this safety data sheet).

#### **Advice on safe handling**

Avoid contact with skin and eyes. Do not wear contact lenses when handling this product. It is also advisable to have individual pocket eyewash. Keep dust levels to a minimum. Minimize dust generation. Enclose dust sources and use exhaust ventilation (dust collector or handling points). Handling systems should preferably be enclosed. When handling bags usual precautions should be paid to the risks outlined in the Council Directive 90/269/EEC. Wear suitable NIOSH-approved respiratory equipment.

#### **Fire prevention**

This product is not flammable or combustible.

#### **Aerosol and dust generation prevention**

Good ventilation of the area minimizes the amount of dust, use dry cleaning methods.

#### **Advice on general occupational hygiene**

Avoid inhalation or ingestion and contact with skin and eyes. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no drinking, eating, and smoking at the workplace. Shower and change clothes at the end of the work shift. Do not wear contaminated clothing at home.

#### **Conditions for safe storage, including any incompatibilities**

Store in under-ventilated, dry conditions. Bulk storage should be in purpose-designed silos. Keep out of reach of children. Keep away from mineral acids.

**Specific end use(s)**

Please check the identified uses in Table 1 of the Appendix of this SDS. For more information, please see the relevant exposure scenario, available via your supplier.

**8. Exposure controls/personal protection**

**Control parameters**

<i>Product Name</i>	<i>EINECs No.</i>	<i>CAS No.</i>	<i>TWA, mg/m<sup>3</sup> ppm, 8hr</i>	<i>STEL, mg/m<sup>3</sup> ppm, 10hr</i>	<i>Source</i>
<b>Cristobalite</b>	238-878-4	14464-46-1	0.05	-	NIOSH REL
<b>Formaldehyde</b>	200-001-8	50-00-0	2.5	2.5	NIOSH
<b>Hexamine</b>	202-905-8	100-97-0	-	-	-
<b>Cryolite</b>	237-410-6	15096-52-3	2.5	-	NIOSH

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

<i>Components</i>	<i>Type</i>	<i>Value</i>	<i>Form</i>
<b>Formaldehyde (CAS 50-00-0)</b>	TWA	3 mg/m <sup>3</sup>	Total particulate

**US OSHA Table Z-3 (29 CFR 1910.1000)**

<i>Components</i>	<i>Type</i>	<i>Value</i>	<i>Form</i>
<b>Cristobalite (CAS 14464-46-1)</b>	TWA	0.15 mg/m <sup>3</sup>	Total dust.
		0.05 mg/m <sup>3</sup>	Respirable.
		1.2 mppcf	Respirable.

**US. ACGIH Threshold Limit Values**

<i>Components</i>	<i>Type</i>	<i>Value</i>	<i>Form</i>
<b>Cristobalite (CAS14464-46-1)</b>	TWA	0.025 mg/m <sup>3</sup>	Respirable fraction.
<b>Formaldehyde (CAS 50-00-0)</b>	TWA	0.1 mg/m <sup>3</sup>	Total particulate

**Exposure guidelines**

To control potential exposure, the generation of dust should be avoided. Further, appropriate protective equipment is recommended. Eye protection equipment (e.g. goggles or visors) must be worn unless potential contact with the eye can be excluded by nature and type of application (i.e. closed process). Additionally, face protection, protective clothing, and safety shoes are required to be worn as appropriate.

**Appropriate engineering controls**

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. Handle in

accordance with good industrial hygiene and safety practices. Wash hands before breaks and at the end of the workday.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Do not wear contact lenses. For powders, tight-fitting goggles with side shields, or wide-vision full goggles. It is also advisable to have individual pocket eyewash. Wear safety glasses with side shields suitable with EN 166 or NIOSH standards.

**Skin protection**

Minimize dermal exposure as far as technically feasible. The use of protective gloves (nitrile), protective standard working clothes fully covering skin, full-length trousers, long-sleeved overalls, with close fittings at openings, and shoes resistant to caustics and avoiding dust penetration are required to be worn.

**Respiratory protection**

Local ventilation to keep levels below established threshold values is recommended. A suitable particle filter mask is recommended, depending on the expected exposure levels – please check the relevant exposure scenario, given in the Appendix/available via your suppliers. Use an FFP2 type mask with EN 143 standard or respirator type N99.

**Thermal hazards**

No data available



**Environmental exposure controls**

All ventilation systems should be filtered before discharge to the atmosphere.

Avoid releasing to the environment.

Contain the spillage. Any large spillage into watercourses must be reported to the regulatory authority responsible for environmental protection or other regulatory bodies.

For detailed explanations of the risk management measures that adequately control the exposure of the environment to the substance please check the relevant exposure scenario, available via your supplier.

**9. Physical and chemical properties**

Appearance

Solid

Color

Brown

Odor

Odorless

Odor threshold

Not applicable.

pH (20°C)

Not applicable.

Water solubility

Not soluble.

Viscosity

Not applicable.

Density (g/cm <sup>3</sup> )	1.0
Partition coefficient	Not applicable.
Auto ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Boiling point (°C) 760 mmHg	Not applicable.
Melting point (°C) 760 mmHg	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammable properties	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	No data available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Other information	No data is available.

## 10. Stability and reactivity

Stability	Reacts with some mineral acids.
Conditions to avoid	Stable under ambient temperature (21 °C) and pressure (760 mmHg)
Possibility of hazardous reactions	No data is available.
Conditions to avoid	In high temperatures (> 125 °C) polymerization may occur.
Incompatible materials	Strong acids, acids, strong oxidizers.
Hazardous decomposition products	Silicon dioxide, metal oxides, toxic or irritating gases.

## 11. Toxicological information

### Information on toxicological effects

ATEmixture > 2000 mg/kg (Oral)  
ATEmixture > 2000 mg/kg (Dermal)  
ATEmixture >2000 mg/k (Inhalation)

### Mixture

#### Acute toxicity

Cristobalite	
• Oral (rat) LD <sub>50</sub>	> 500 mg/kg
• Dermal	No data available
• Inhalation	No data available
Formaldehyde	
• Oral (rat) LD <sub>50</sub>	> 800 mg/kg
• Inhalation	38 mg/m <sup>3</sup>
• Dermal	No data available
Cryolite	
• Oral (rat) LD <sub>50</sub>	> 2000 mg/kg
Hexamine	
• Oral (rat) LD <sub>50</sub>	> 20,000 mg/kg
• Dermal (rat) LD <sub>50</sub>	> 2000 mg/kg

**Skin corrosion/irritation** May dry skin and mucous membranes.

**Serious eye damage/eye irritation**

Slightly irritating, and not classified.

**Respiratory or skin sensitization**

Does not cause sensitization.

**Germ cell mutagenicity**

No data available.

**Carcinogenicity**

In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However, in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibers, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Cristobalite (CAS 14464-46-1)

1 Carcinogenic to humans.

**US National Toxicology Program (NTP) Report on Carcinogens**

Cristobalite (CAS 14464-46-1)

Known To Be Human Carcinogen.

**Reproductive toxicity**

No data available.

**Specific target organ toxicity - single exposure**

No data available.

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

No data available.

**12. Ecological information**

**Ecotoxicity**

No ecotoxicological effect is known

**Acute toxicity**



#### Formaldehyde

- Fish LC<sub>50</sub> (24 hr) 31.8 mg/Lt
- Algae EC<sub>50</sub> (72 hr) 3.48 mg/Lt
- Daphnia EC<sub>50</sub> (48 hr) 5.8 mg/Lt
- Microorganisms EC<sub>50</sub> (120 hr) 34.1 mg/Lt

#### Cryolite

- Fish, *Salmo gairdneri* LC<sub>50</sub> (96 saat) 47 mg/Lt
- Daphnia EC<sub>50</sub> (48 hr) 5. mg/Lt

#### Hexamine

- Fish, LC<sub>50</sub> (96 hr) 49,000 mg/l
- Daphnia EC<sub>50</sub> (48 hr) 36,000 mg/l

**Persistence and degradability** No data available.

**Bio-accumulative potential** No data available.

**Mobility in soil** No data available.

#### **Results of PBT and vPvB assessment**

No data available.

#### **Other adverse effects**

No data available.

### 13. Disposal considerations

#### **Waste treatment methods**

Disposal of this product should be in accordance with local and national legislation. Processing, use, or contamination of this product may change the waste management options. Dispose of containers and unused contents in accordance with applicable member state and local requirements.

The used packaging is only meant for packing this product; it should not be reused for other purposes. After usage, empty the packaging completely.

### 14. Transport information

#### **DOT**

Not applicable

#### **Un No.**

Not applicable

#### **UN Proper shipping name**

Not applicable

#### **Transport hazard class(es)**

Not applicable

#### **Packing group**

Not applicable

#### **Environmental hazards**

Not applicable

#### **Special precautions for user**

Not applicable

#### **Transport in bulk according to Annex II of MARPOL and the IBC Code**

Not applicable

## 15. Regulatory information

<b>US federal regulations</b>	This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All chemical substances in this product are listed on the TSCA chemical substance inventory where required.
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b>	Not regulated.
<b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>	Not listed.
<b>SARA 304 Emergency release notification</b>	Not regulated.
<b>US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>	Not listed.
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA)</b>	
<b>Hazard categories</b>	Immediate Hazard - No Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
<b>SARA 302 Extremely hazardous substance</b>	Not listed.
<b>SARA 311/312 Hazardous Chemical</b>	Fire hazard, chronic health hazard, acute health hazard
<b>SARA 313 (TRI reporting)</b>	Formaldehyde (CAS 50-00-0)
<b>Other federal regulations</b>	
<b>Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List</b>	Not Regulated
<b>Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)</b>	Not regulated.
<b>Safe Drinking Water Act (SDWA)</b>	Not regulated.
<b>US state regulations</b>	
<b>US California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)</b>	Not listed.
<b>US Massachusetts RTK - Substance List</b>	Cristobalite (CAS 14464-46-1)
<b>US New Jersey Worker and Community Right-to-Know Act</b>	Cristobalite (CAS 14464-46-1) Cryolite (CAS 15096-52-3) Hexamine (CAS 100-97-0)
<b>US Pennsylvania Worker and Community Right-to-Know Law</b>	Cristobalite (CAS 14464-46-1) Cryolite (CAS 15096-52-3) Hexamine (CAS 100-97-0)
<b>US Rhode Island RTK</b>	Not listed.
<b>US California Proposition 65</b>	

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.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**  
Not listed.

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

### Abbreviations and acronyms

CLP	Classification Labeling and Packaging
GHS	Global Harmonized System
TLV	Threshold Limit Value
WEL	Workplace exposure limit
TWA	A Time-Weighted Average
STEL	A Short-Term Exposure Limit
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
IMDG	International Maritime Code for Dangerous Goods
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association

### Relevant R-, H- and EUH-phrases (number and full text)

H228	Flammable solid.
H301	Toxic if swallowed.
H322	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long-lasting effects.
P261	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see health care instructions on label).
P501	Dispose of contents/container to an approved waste disposal plant.

This information is supplied to be informative and to alert the user of the material. The ultimate compliance with federal, state, and/or local regulations concerning the use of this material, or compliance with respect to product liability, rests solely upon the purchaser thereof.

**Prepared by:** FRC Global  
**Date:** March 2021

DISCLAIMER: Reasonable care has been taken in the preparation of the information provided and believed to be correct as of the issue date. However, FRC Global makes no representation or warranties and assumes no responsibility as to the completeness and accuracy thereof. Users must make their own determination as to the suitability of the product for their purpose before use. FRC Global will not be responsible for any damages of any nature directly or indirectly whatsoever resulting from the use of, reliance upon, or misuse of the information contained herein.

**End of Safety Data Sheet**