



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
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Product Support/Technical Services
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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 Danger
Hazard Statements 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/fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.

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 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/container to an approved waste disposal plant.

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

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 area.

Inhalation Remove from exposure and provide fresh air for 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 again.
Eye contact	Check for and remove any contact lenses. Rinse out with water with the eyelid held wide open for 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 ₂), metal oxides, toxic or irritating gases may occur. Powders may cause explosion 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 generation of dust.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	<p>Ensure adequate ventilation.</p> <p>Keep dust levels to a minimum.</p> <p>Keep unprotected persons away.</p> <p>Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8)</p> <p>Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8).</p> <p>Avoid humidification.</p>
For emergency responders	<p>Keep dust levels to a minimum.</p> <p>Ensure adequate ventilation.</p> <p>Keep unprotected persons away.</p> <p>Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).</p> <p>Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment (see section 8).</p>

Avoid humidification.

Environmental precautions

Contain the spillage if safe to do so. Cover area if possible to avoid unnecessary dust hazard. Avoid uncontrolled spills to 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 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 section 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 which may cause heat, flame or ignition. Do not smoke in the area. Keep 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, use exhaust ventilation (dust collector or handling points). Handling systems should preferably 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 preventions

This product is not flammable or combustible.

Aerosol and dust generation preventions

Good ventilation of area minimizes amount of dusts, 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 end of work shift. Do not wear contaminated clothing at home.

Conditions for safe storage, including any incompatibilities

Store 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

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

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

Components	Type	Value	Form
Formaldehyde (CAS 50-00-0)	TWA	3 mg/m ³	Total particulate

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

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

US. ACGIH Threshold Limit Values

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

Exposure guidelines

To control potential exposures, 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 the 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 practice. Wash hands before breaks and at the end of 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 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 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 body.
For detailed explanations of the risk management measures that adequately control 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/cm³)	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 available
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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 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

ATE_{Mixture} > 2000 mg/kg (Oral)
ATE_{Mixture} > 2000 mg/kg (Dermal)
ATE_{Mixture} >2000 mg/k (Inhalation)

Mixture

Acute toxicity

Acute toxicity

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

Skin corrosion/irritation	May dry skin and mucous membranes.
Serious eye damage/eye irritation	Slightly irritating, not classified.
Respiratory or skin sensitization	Does not cause sensitization.
Germ cell mutagenicity	No data available.
Carcinogenicity	No data available.

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

Eco toxicity

No ecotoxicological effect known

Acute toxicity

Formaldehyde

- Fish LC₅₀ (24 hr) 31.8 mg/Lt
- Algae EC₅₀ (72 hr) 3.48 mg/Lt
- Daphnia EC₅₀ (48 hr) 5.8 mg/Lt
- Microorganisms EC₅₀ (120 hr) 34.1 mg/Lt

Cryolite

- Fish, Salmo gairdneri LC₅₀ (96 saat) 47 mg/Lt
- Daphnia EC₅₀ (48 hr) 5. mg/Lt

Hexamine

- Fish, LC₅₀ (96 hr) 49,000 mg/l
- Daphnia EC₅₀ (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 container 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

US federal regulations

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.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No

Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard – No

SARA 302 Extremely hazardous substance Not listed.
SARA 311/312 Hazardous Chemical Fire hazard, chronic health hazard, acute health hazard
SARA 313 (TRI reporting) Formaldehyde (CAS 50-00-0)

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. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Cristobalite (CAS 14464-46-1)

US. New Jersey Worker and Community Right-to-Know Act

Cristobalite (CAS 14464-46-1)

Cryolite (CAS 15096-52-3)

Hexamine (CAS 100-97-0)

US. Pennsylvania Worker and Community Right-to-Know Law

Cristobalite (CAS 14464-46-1)

Cyolite (CAS 15096-52-3)

Hexamine (CAS 100-97-0)

US. Rhode Island RTK

Not listed.

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.

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 respects to products liability, rest solely upon the purchaser thereof.

Prepared by: FRC Global
Date: March, 2021

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End of Safety Data Sheet