

# Material Safety Data Sheet



Silicone-free Heat Sink Compound

## 1. Product and company identification

<b>Product name</b>	: Silicone-free Heat Sink Compound
<b>Supplier</b>	: Techspray 8125 Cobb Center Drive Kennesaw, GA 30152 Tel: 800-858-4043 1 703-527-3887
<b>Trade name</b>	: Silicone-free Heat Sink Compound
<b>Manufacturer</b>	: Techspray 8125 Cobb Center Drive Kennesaw, GA 30152 Tel: 800-858-4043 1 703-527-3887
<b>Code</b>	: 1978-1, 1978-DP
<b>MSDS #</b>	: 1978-1, 1978-DP
<b>Validation date</b>	: 3/28/2015.
<b>Print date</b>	: 3/28/2015.
<b><u>In case of emergency</u></b>	: Chemtrec - 1-800-858-4043 CANTUC (Canadian Transportation): (613) 996-6666 Emergency phone: (800) 858-4043
<b>Product type</b>	: Solid.

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Solid. [Paste.]
<b>Color</b>	: Gray.
<b>Hazard statements</b>	: MAY CAUSE EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
<b>Precautionary measures</b>	: Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Potential acute health effects

<b>Inhalation</b>	: No known significant effects or critical hazards.
<b>Ingestion</b>	: No known significant effects or critical hazards.
<b>Skin</b>	: Slightly irritating to the skin.
<b>Eyes</b>	: Slightly irritating to the eyes.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

## 2. Hazards identification

**Target organs** : Contains material which may cause damage to the following organs: lungs, upper respiratory tract.

### Over-exposure signs/symptoms

**Inhalation** : No specific data.

**Ingestion** : No specific data.

**Skin** : Adverse symptoms may include the following:  
irritation  
redness

**Eyes** : Adverse symptoms may include the following:  
irritation  
watering  
redness

**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

Name	CAS number	%
zinc oxide	1314-13-2	65 - 70

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 4. First aid measures

**Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

**Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

**Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product** : No specific fire or explosion hazard.

### Extinguishing media

**Suitable** : Use an extinguishing agent suitable for the surrounding fire.

**Not suitable** : None known.

## 5. Fire-fighting measures

- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
halogenated compounds  
metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

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Ingredient	Exposure limits
zinc oxide	<p><b>NIOSH REL (United States, 10/2013).</b>            CEIL: 15 mg/m<sup>3</sup> Form: Dust            TWA: 5 mg/m<sup>3</sup> 10 hours. Form: Dust and fumes            STEL: 10 mg/m<sup>3</sup> 15 minutes. Form: Fume</p> <p><b>OSHA PEL (United States, 2/2013).</b>            TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Fume            TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction            TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            STEL: 10 mg/m<sup>3</sup> 15 minutes. Form: Fume            TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Fume            TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction            TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust</p> <p><b>ACGIH TLV (United States, 4/2014).</b>            STEL: 10 mg/m<sup>3</sup> 15 minutes. Form: Respirable fraction            TWA: 2 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction</p>

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

<b>Physical state</b>	: Solid. [Paste.]
<b>Flash point</b>	: Closed cup: 296°C (564.8°F)
<b>Color</b>	: Gray.
<b>Boiling/condensation point</b>	: 204°C (399.2°F)
<b>Vapor pressure</b>	: 0.013 kPa (0.1 mm Hg) [room temperature]
<b>Evaporation rate</b>	: 0.01 (butyl acetate = 1)

## 10. Stability and reactivity

<b>Chemical stability</b>	: The product is stable.
<b>Conditions to avoid</b>	: No specific data.
<b>Incompatible materials</b>	: Reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

**Conclusion/Summary** : Not available.

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
zinc oxide	-	-	-	-	-	None.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

## 12. Ecological information

**Ecotoxicity** : No known significant effects or critical hazards.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
zinc oxide	Acute EC50 0.042 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute LC50 98 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1.1 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 0.017 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours

**Conclusion/Summary** : Not available.

### Persistence/degradability

**Conclusion/Summary** : Not available.

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
<b>DOT Classification</b>	Not regulated.	Nonhazardous	-	-		-
<b>TDG Classification</b>	Not regulated.	Nonhazardous	-	-		-
<b>Mexico Classification</b>	Not regulated.	Nonhazardous	-	-		-
<b>ADR/RID Class</b>	Not regulated.	Nonhazardous	-	-		-
<b>IMDG Class</b>	Not regulated.	Nonhazardous	-	-		-

**14. Transport information**

<b>IATA-DGR Class</b>	Not regulated.	Nonhazardous	-	-		The environmentally hazardous substance mark may appear if required by other transportation regulations.
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PG\* : Packing group

**15. Regulatory information****HCS Classification** : Target organ effects**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
Not determined.**Clean Water Act (CWA) 307:** zinc oxide**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed**Clean Air Act Section 602 Class I Substances** : Not listed**Clean Air Act Section 602 Class II Substances** : Not listed**DEA List I Chemicals (Precursor Chemicals)** : Not listed**DEA List II Chemicals (Essential Chemicals)** : Not listed**SARA 302/304****Composition/information on ingredients**

No products were found.

**SARA 304 RQ** : Not applicable.**SARA 311/312****Classification** : Delayed (chronic) health hazard**Composition/information on ingredients**

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
zinc oxide	65 - 70	No.	No.	No.	No.	Yes.

**SARA 313**

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	zinc oxide	1314-13-2	65 - 70
<b>Supplier notification</b>	zinc oxide	1314-13-2	65 - 70

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations****Massachusetts** : The following components are listed: ZINC OXIDE FUME**New York** : None of the components are listed.



## 15. Regulatory information

- New Jersey** : The following components are listed: ZINC OXIDE
- Pennsylvania** : The following components are listed: ZINC OXIDE (ZNO)
- Canada inventory** : Not determined.
- International regulations**
- International lists** : **Australia inventory (AICS)**: Not determined.  
**China inventory (IECSC)**: All components are listed or exempted.  
**Japan inventory**: Not determined.  
**Korea inventory**: All components are listed or exempted.  
**Malaysia Inventory (EHS Register)**: Not determined.  
**New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.  
**Philippines inventory (PICCS)**: Not determined.  
**Taiwan inventory (CSNN)**: Not determined.
- Chemical Weapons Convention List Schedule I Chemicals** : Not listed
- Chemical Weapons Convention List Schedule II Chemicals** : Not listed
- Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## 16. Other information

- Label requirements** : MAY CAUSE EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
- Hazardous Material Information System (U.S.A.)** :

Health		1
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

- National Fire Protection Association (U.S.A.)** :



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## 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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**Prepared by** : Not available.

✔ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.