

GC Electronics
 1801 Morgan Street
 Rockford, IL 61102
 Phone: (815) 968-9661
 Fax: (815) 968-9731
 www.gcelectronics.com

Product Name: Heat Sink Compound
 MSDS Number: 148
 Revision Date: 12/16/03
 Supersedes Date: 1/9/01

MATERIAL SAFETY DATA SHEET

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

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|-----------------|---------------------------|---------------------------|-----------------------|
| Product Type: | Silicone | Emergency Contact: | Chemtrec |
| Product Name: | Heat Sink Compound | Phone (24 hours): | (800) 424-9300 |
| Part Number(s): | 10-8106 | | |
| | 10-8109 | | |
| | 10-8108 | | |
| | 10-8107-100 disc. | | |
| | 10-8107-10 disc. | | |

Section 1 - Identification of Product

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|------------------------|--|------------------------|---|
| | | Least | 0 |
| HMIS | | Slight | 1 |
| Health: 1 | | Moderate | 2 |
| Flammability: 1 | | High | 3 |
| Reactivity: 0 | | Extreme 4 | 4 |
| Personal Protection: X | | Gloves, Safety Glasses | B |

Section 2 - Hazardous Ingredients

Components listed in this section may contribute to the potential hazards associated with exposure to the concentrate. The product may contain additional non-hazardous or trade-secret components.

| Hazardous Ingredients: | CAS# | % | ACGIH TLV | ACGIH STEL | OSHA PEL |
|------------------------|-----------|-----|---|-----------------|---|
| Zinc Oxide | 1314-13-2 | <75 | 5 mg/m3 (fume) 10 mg/m3 (total dust) | 10 mg/m3 (fume) | 5 mg/m3 (resp. fraction) 15 mg/m3 (total dust) |

This component is regulated under Section 313 SARA and contains no carcinogens.

Section 3 - Physical Data

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| Solubility in Water (@20 C): | Insoluble |
| Specific Gravity (water=1): | 2.350 |
| Vapor Pressure (mmHg @ 20 C): | NIL |
| Evaporation Rate (ether-1): | < 0.001 |
| Percent Volatile (by weight): | Zero |
| Vapor Density (air=1): | > 1 |
| Strong Acid: | No |
| Strong Base: | No |
| Boiling Point (Deg. F): | +600F. |
| Melting Point (Deg. F): | N.A. |
| Appearance and Odor: | White gel, odorless. semi-solid |

Section 4 - Fire & Explosion Hazard Data

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| Flash Point (method): | 500.0° F COC |
| Flammable Limits-LEL: | Unknown |
| Flammable Limits-UEL: | Unknown |
| Extinguishing Agents: | Dry Chemical, CO2 fire extinguishers, foam are acceptable. Note that while water fog extinguishers are also acceptable, do NOT apply a direct stream of water onto burning product because it may cause spreading and increase fire intensity. |
| Fire Fighting Procedures and Equipment: | Emergency responders in the danger area should wear bunker gear and self-contained breathing apparatus for fires beyond the incipient stage. See Section 8 of the MSDS for other PPE to be worn as conditions warrant. |
| Decomposition Products May Include: | Thermal decomposition products are dependent on combustion conditions. A complex mixture of airborne solid, liquid, particulates and gasses may evolve when the material burns. Combustion by products may include: Oxides of carbon Oxides of zinc Incompletely burned hydrocarbons as fumes and smoke |

Section 5 - Health Hazard Data

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| Potential Health Effects and Symptoms from Short Term/Acute Exposure: | |
| Eyes: | This product is not expected to cause eye irritation under normal conditions of use. Symptoms of slight eye irritation may result when direct contact occurs, or when exposed to high mist levels in poorly ventilated areas. |
| Skin: | Short term skin contact is not expected to cause skin irritation. Prolonged or repeated direct exposure to the skin may result in symptoms of irritation and redness. |
| Inhalation: | This product has low volatility and so is not expected to cause respiratory tract irritation during normal conditions of use. Exposure to high mist levels in poorly ventilated areas may cause temporary irritation to the upper respiratory tract Although thermal decomposition is not an anticipated exposure route, both ACGIH and OSHA have established TWA exposure limits of 5 mg/m ³ for zinc oxide fumes. ACGIH also has a STEL of 10 mg/m ³ for fumes. Over exposure to fumes may produce symptoms known as Metal Fume Fever or "zinc shakes"; an acute, self-limiting condition without recognized complications. Symptoms of Metal Fume Fever include: chills, fever, muscular pain, nausea and vomiting. |
| Ingestion: | Ingestion may cause slight stomach irritation and discomfort. |
| Potential Chronic Health Effects: | No further data known. |

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Medical Conditions Aggravated by Exposure: No further data known.
Carcinogenicity: This product is not listed as a known or suspected carcinogen by IARC, OSHA, or the NTP.

First Aid Measures:
Eye Contact: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes.
Skin Contact: Remove product from the skin by washing with a mild soap and water. Contaminated clothing should be removed to prevent prolonged exposure. If product is injected under the skin, seek treatment immediately. If symptoms of exposure persist, contact a physician.
Inhalation: If signs or symptoms of overexposure occur, remove the employee to fresh air. If symptoms persist, seek medical attention.
Ingestion: If ingested, dilute stomach contents with two glasses of milk or water. (NOTE: Do NOT give anything by mouth to an unconscious person.) Do not induce vomiting without medical supervision. If vomiting occurs spontaneously, keep airway clear. If symptoms of ingestion persist, seek medical attention.

NOTE TO PHYSICIAN: No further data known

Section 6 - Reactivity Data

Stability: Stable
Incompatibility: Keep away from strong oxidizers
Conditions to Avoid: Avoid contact with incompatible material and exposure to extreme temperatures.
Note: Hazardous polymerization will not occur

Section 7 - Spill or Leak Procedures

Clean-Up Measures:: Important: As with any spill or leak, before responding ensure that you are familiar with the potential hazards and recommendations of the MSDS. Appropriate personal protective equipment must be worn. See Section 8 of this MSDS for PPE recommendations.

If possible, safely contain the spill with dikes or other spill response equipment appropriate for petroleum or organic material releases. Take measures to prevent spreading of product. Note that while product will ignite it will not readily burn. However, as a precaution, eliminate ignition source. Prevent from entering sewers or waterways. Large volumes may be transferred to an appropriate container for proper disposal. Small volumes or residues may be soaked up with absorbents. Spill response materials should be collected for proper disposal.

Section 8 - Special Protection Information

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| Personal Protective Equipment: Protection: | Selection of personal protective equipment should be based upon the anticipated exposure and made in accordance with OSHA's Personal Protective Equipment Standard found in 29 CFR 1910 Subpart I. The following information may be used to assist in PPE selection. |
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| Eye Protection: | Wear eye protection appropriate to prevent eye exposure. Where splashing is not likely, chemical safety glasses with side shields are recommended. Where splashing may occur, chemical goggles or full face shield is recommended. |
| Skin Protection: | Gloves are not normally needed during normal conditions of use. If health effects are experienced, oil or chemical resistant gloves such as butyl or nitrile are recommended. Where splashing or soaking is likely, wear oil or chemical resistant clothing to prevent exposure. |
| Respiratory Protection: | A respirator may be worn to reduce exposure to vapors, dust, or mist. Select a NIOSH/MSHA approved respirator appropriate for the type and physical character of the airborne material. A self-contained breathing apparatus is recommended in all situations where airborne contaminant concentration has not been confirmed to be below safe levels. Respirator use should comply with the OSHA respirator Protection Standard found in 29 CFR 1910.134. |
| Engineering Controls: | Normal general ventilation is expected to be adequate. It is recommended that ventilation be designed in all instances to maintain airborne concentrations at lowest practicable levels. Ventilation should at a minimum, prevent airborne concentrations from exceeding any exposure limits listed in Section 2 of this MSDS. The user may wish to refer to 29 CFR 1910.1000(d)(2) and the ACGIH "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices" (Appendix C) for the determination of exposure limits of mixtures. An industrial hygienist or similar professional may be consulted to confirm that the calculated exposure limits apply. |

Section 9 - Special Precautions

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| Handling: | As with any industrial chemical, handle the product in a manner that minimizes exposure to practicable levels. Prior to handling, consult Section 8 of this MSDS to evaluate personal protective equipment needs. Open containers slowly to relieve any pressure. Follow all other standard industrial hygiene practices. |
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Empty containers may contain product residue. All safety precautions taken when handling this product should also be taken when handling empty drums and containers. Keep containers closed when not in use.

Product residue in empty containers is combustible but will not readily burn. NOTE however, that excessive heating or cutting of empty containers may create an ignition source sufficient to start a fire and in extreme cases, cause an explosion.

Waste Disposal Precautions in Storage:

Protect product quality by storing indoors and away from extreme temperatures. Close all containers when not in use. Ensure that collection, transport, treatment, and disposal of waste product, containers and rinsate complies with all applicable laws and regulations. Note that use, mixture, processing, or contamination of the product may cause the material to be classified as a hazardous waste. It is the responsibility of the product user or owner to determine at the time of disposal, whether the product is regulated as a hazardous waste.

Special Comments: No further data known.

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| Section 10 - Regulatory Information |
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DOT Hazardous Material Information: Not regulated by US DOT unless shipped in pressurized containers. See bill of lading for proper DOT classification of pressurized container.

Federal Regulations:
SARA 313: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Zinc Oxide Cas # 1314-13-2 Pct by Wt: <75

CERCLA Reportable Quantity: Any components listed below have been assigned a reportable quantity (RQ) by the Federal EPA. Releases of the product into the environment that exceed the RQ for a particular component must be reported to the National Response Center at 1-800-424-8802.

Component _____ RQ _____

Toxic Substances Control Act: The components of this product are listed on the TSCA inventory.

Ozone Depleting Substances: This product contains no ozone depleting substances as defined by the Clean Air Act.

Hazardous Air Pollutants: Any components listed below are defined by the Federal EPA as hazardous air pollutants. None

State Regulations: No further data known.

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Disclaimer

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