

Material Safety Data Sheet

Revision Date: 2016.09.09

GR-005-1 THERMAL COOLER PASTE

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product Name: GR-005-1 THERMAL COOLER PASTE
(PART # : SILVGREASE1)

1.2 Chemical Classification: Heatsink compound

1.3 Dangerous Goods Classification: Not applicable.

1.4 Company Details:

Supplier: StarTech.com

Address: 2500 Creekside Parkway, Suite 100, Lockbourne, Ohio, 43137, USA.

Telephone Number: 1-800-265-1844 **Fax Number:** (519)455-9425

2. COMPOSITION / INFORMATION ON INGREDIENTS

2.1 Chemical characterization: Mixture

2.2 Physical Form: Grease

2.3 Color: Gray

2.4 Use: Electronics/Microelectronics application

2.5 Ingredients:

Composition	Chemical Name	CAS NO.	%
Silicon compounds	Silicon	7440-21-3	< 20
	Poly dimethylsiloxane	63148-62-9	< 15
Carbon compounds	Silicon Carbide	409-21-2	< 10
Metal compounds	Zinc Oxide	1314-13-2	> 15
	Aluminum oxide	1344-28-1	> 20
	Magnesium oxide	1309-48-4	> 20

3. HAZARDS IDENTIFICATION

3.1 Overall Hazard Classification: Non-Dangerous for the environment.

3.2 Hazard Information: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid contact with skin and eyes. In case of fire and/or explosion do not breathe fumes. Use appropriate container to avoid environmental contamination. This material and its container must be disposed of as hazardous waste.

3.3 Route of Exposure: Skin Contact and Accidental Ingestion.

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3.4 Possible Health Effects:

Acute

Eyes: Direct contact may cause mild irritation.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Ingestion: Low ingestion hazard in normal use.

Chronic

Skin: Repeated or prolonged exposure may cause irritation.

Inhalation: No known applicable information.

Ingestion: Repeated ingestion or swallowing large amounts may injure internally.

3.5 Signs and Symptoms of Overexposure:

No significant adverse effects from a single exposure expected from normal use.

4. FIRST AID MEASURES

4.1 Eyes: Immediately flush with water for 15 minutes.

4.2 Skin: No first aid should be needed.

4.3 Inhalation: No first aid should be needed.

4.4 Ingestion: Get medical attention.

4.5 Comments: Treat according to person's condition and specifics of exposure.

4.6 Note to physicians: Treat symptomatically. For further information, the medical practitioner should contact professional medical person

5. FIRE FIGHTING MEASURES

5.1 Flammability: Non-flammable.

5.2 Flash Point: 305 °C (Seta Closed Cup)

5.3 Autoignition temperature: N/A.

5.4 Lower Flammability Limit: N/A

5.5 Upper Flammability Limit: N/A

5.6 Hazardous Properties: None.

5.7 Extinguishing Media: On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO₂), dry chemical or water spray. Water can be used to cool fire exposed containers.

5.8 Special Fire Fighting Determine the need to evacuate or isolate the area according to your local emergency plan.

Procedures and Equipment: Use water spray to keep fire exposed containers cool. Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals.

5.9 Hazardous Combustion Products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Metal oxides. Formaldehyde.

5.10 Unsuitable Extinguishing Media: None established.

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6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions: Avoid eye contact. Do not take internally.

6.2 Environmental Precautions: Prevent from spreading or entering into drains, ditches or rivers by using sand, earth or other appropriate barriers.

6.3 Methods for Cleaning up: Observe all personal protective equipment recommendations described in this MSDS.

If diked material can be pumped, store recovered material in appropriate container. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which laws and regulations are applicable.

7. HANDLING AND STORAGE

7.1 Handling Precautions: Use with adequate ventilation. Avoid eye contact. Do not take internally. Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

7.2 Storage Conditions: Use reasonable care and store away from oxidizing materials. Store in tightly sealed container. Do not store under pressure. Keep out of reach of children and animals.

7.3 Unsuitable Packaging Materials: None established.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Industrial Hygiene Standards:

Exposure Limits

Observe zinc oxide limits. OSHA PEL (final rule): TWA 15 mg/m³

Total dust, 5 mg/m³ respiratory fraction. ACGIH TLV: TWA 10 mg/m³ total dust.

8.2 Engineering Controls

Local Ventilation: None should be needed.

General Ventilation: Recommended.

8.3 Personal Protective Equipment for Routine Handling

Respiratory protection: No respiratory protection should be needed.

Suitable Respirator: None should be needed.

Eye protection: Use proper protection - safety glasses.

Hand protection: No special protection needed.

Skin protection: Washing at mealtime and end of shift is adequate.

Hygiene Measures: Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

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8.4 Personal Protective Equipment for Spills

Respiratory protection: No respiratory protection should be needed.

Eye protection: Use proper protection - safety glasses as a minimum.

Skin protection: Washing at mealtime and end of shift is adequate.

Precautionary Measures: Avoid eye contact. Do not take internally. Use reasonable care.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Physical Form: Grease

9.2 Color: Gray

9.3 Odor: Odorless

9.4 pH: Not determined.

9.5 Solubility in Water: Not determined.

9.6 Boiling Point: Not determined.

9.7 Melting Point: Not determined.

9.8 Flash Point: 305 °C (Seta Closed Cup)

9.9 Autoignition temperature: Not determined.

9.10 Explosive properties: No

9.11 Oxidizing properties: No

9.12 Vapor Pressure @ 25°C: Not determined.

9.13 Specific Gravity: 3.15

9.14 Octanol-water partition coefficient: Not determined

9.15 Vapor Density (air=1): Not determined.

9.16 Viscosity: Not determined.

9.17 Molecular Weight: Not determined.

10. STABILITY AND REACTIVITY

10.1 Stability: Stable.

10.2 Reactivity

Conditions to Avoid: None.

Materials to Avoid: Can react with strong hydrogen gas and oxide.

Hazardous Decomposition

Hazardous Polymerization: Hazardous polymerization will not occur

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11. TOXICOLOGICAL INFORMATION

11.1 Possible Health Effects: Refer to Section 3.4

11.2 Sensitizing Effects: None known.

11.3 Mutagenic Effects: None known.

11.4 Reproductive Effects: None known.

11.5 Carcinogenic Effects: None known.

11.6 Other Health Hazard Information: Inhalation of fumes may result in metal fume fever, a flu-like illness with symptoms of metallic taste, fever and chills, aches, chest tightness, and cough.

The above listed potential effects of overexposure are based on actual data, the results of studies performed upon similar compositions, component data, and/or expert review of the products.

12. ECOLOGICAL INFORMATION

12.1 Environmental Fate and Distribution: Solid material, insoluble in water.

12.2 Environmental Effects: Toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment. However, due to the physical form and water-insolubility of the product the bioavailability is negligible.

12.3 Fate and Effects in Waste Water Treatment Plants: No adverse effects on bacteria are predicted.

13. DISPOSAL CONSIDERATIONS

13.1 Product Disposal: This material must be disposed of as hazardous waste.

13.2 Packaging Disposal: Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions(2015-2016Edition) ,
- The International Air Transport Association(IATA) Dangerous Goods Regulations (56th Edition,2016)
- The International Maritime Dangerous Goods(IMDG) Code (2016 Edition)

Our products are properly classified, described, packaged, marked ,and labeled ,and are in proper condition for transportation according to all the applicable international and national governmental regulations not limited to the above mentioned . We further certify that the enclosed products have been tested and fulfilled the requirements and conditions in SGS and RoHS that can be treated as "Non-Dangerous Goods"

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15. REGULATORY INFORMATION

15.1 Applicable Laws: Provisions of the Regulations for the Safe Handling of Chemicals in the Workplace, particularly those relating to the safe use, production, storage and transportation of dangerous chemicals. The Regulations for Safe Management of Dangerous Chemicals (promulgated by the PRC Government on 1-2-2002.) Code of Practice for Safe Management of Dangerous Chemicals (Ministry of Labor, No.677-1992).

15.2 Chemical Inventories:

IECSC: All ingredients listed or exempt.

EINECS: Not determined.

MITI: Consult Chemical Stuff

KECL: One or more ingredients are not listed or exempt or identified.

PICCS: One or more ingredients are not listed or exempt.

TSCA: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

AICS: One or more ingredients are not listed or exempt.

16. OTHER INFORMATION

This information is offered in good faith as typical values and not as a product specification. No warranty, expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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