

Safety Data Sheet

Revision Date: 14th June 2019

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name *GC-Extreme Thermal Compound (Heatsink Compound)*

Model Nr *TC-GC-03*

Recommended use of the chemical and restrictions on use

Recommend use Electrical industry and electronics

Manufacturer or supplier's details

Manufacturer Gelid Solutions Ltd.

Address Unit 704B, 7/F., Sunbeam Centre, 27 Shing Yip Street
Kwun Tong Hong Kong

Emergency Telephone number +852 8120 5375

E-Mail address Info@gelidsolutions.com

2. Hazard Identification

GHS Classification

This material is not classified as hazardous under the Article 39 Paragraph 1 of the Industrial Safety and Health Act (ISHA). It is not regulated for the MSDS creation and labeling by the provision of Article 41 Paragraph 1 of the ISHA

GHS Label element

Hazard pictograms Not applicable

Signal word Not applicable

Hazard statements Not applicable

Precautionary statements Prevention:
P264 Wash the contact area thoroughly after handling.
Disposal: P501 Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification No data available

3. Composition/Information on Ingredients

Substance/ Mixture : Mixture

Chemical nature : Silicone compound

Chemical name	Common Name	CA S-No.	Concentration (%w/w)
Vinyl, Methyl, Siloxane modified Zinc Oxide	1-Propanethiol, 3-(triethoxysilyl)-	Not Assigned	>= 20 - < 30
Treated alumina	Proprietary Ingredient	Proprietary Ingredient	>= 60 - < 70
Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated	No data available	471 277 -16- 4	>= 1 - < 10

4. First Aid Measures

If inhaled	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	Wash with water and soap as a precaution. Get medical attention if symptoms occur.
In case of eye contact	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
If swallowed	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: None known.

Protection of first-aiders	No special precautions are necessary for first aid responders.
Notes to physician	Treat symptomatically and supportively

5. Fire Fighting Measures

Suitable extinguishing media	: Water Spray : Alcohol-resistant foam : Carbon dioxide (CO ₂) : Dry chemical
Unsuitable extinguishing	: None known.
Specific hazards during firefighting	: Exposure to combustion products may be a hazard to health.



Hazardous combustion products: Carbon oxides
Silicon oxides
Formaldehyde
Metal oxides

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up: Soak up with inert absorbent material. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national 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 regulations are applicable.

7. Handling and Storage

Technical measures : See Engineering under Exposure Controls / Personal Protection section.

Local/ Total ventilation: Use only with adequate ventilation

Advice on safe handling: Handle in accordance with good industrial hygiene and safety practice. Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage: Keep in properly labeled containers. Store in accordance with the particular national regulations.

Materials to avoid :Do not store with the following product types: Strong oxidizing agents

8. Exposure Controls / Personal Protection

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methanol	67-56-1	STEL	250 ppm	KR OEL
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)			
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		TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH

Engineering measures Processing may form hazardous compounds (see section 10).
 Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

Personal protective equipment. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection : Use respiratory protection (gas mask) unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type: Combined particulates, organic gas and low boiling vapour
 Type

Hand Protection

- Remarks : Wash hands before breaks and at the end of the workday.
- Eye protection : Wear the following personal protective equipment: Safety glasses
- Skin and body protection : Skin should be washed after contact.
- Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use. The precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. Physical and Chemical Properties

Appearance	:	Grease
Color	:	gray
Odor	:	none
Odor Threshold	:	N/A
pH	:	N/A
Flash point	:	<100°C Method: Seta closed cup
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Self-ignition	:	The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	Not applicable
Solubility(ies)	:	
Water solubility	:	No data available
Relative vapour density	:	No data available
Relative density	:	3.5
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	
Viscosity, dynamic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	No data available

10. Stability and Reactivity

Reactivity	:	Not classified as a reactivity hazard
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde. Hazardous decomposition products will be formed upon contact

with water or humid air.

Hazardous decomposition products will be formed at elevated temperatures.

Conditions to avoid : None know.
Incompatible materials : Oxidizing agents

Hazardous decomposition products

Contact with water or humid
air

: Methanol

Thermal decomposition : Formaldehyde

11. Toxicological Information

Information on likely routes of exposure

:Skin contact

:Ingestion

:Eye contact

Health hazard information

Acute toxicity

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Acute oral toxicity : LD50 (Rat): > 50 ml/kg

Assessment: The substance or mixture has no acute oral toxicity

Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Assessment: The substance or mixture has no acute dermal toxicity.

Remarks: Based on data from similar materials

Skin corrosion/irritation

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

Serious eye damage/eye irritation

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

Respiratory or skin sensitization

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Assessment: Does not cause skin sensitisation.

Test Type: Maximisation Test

Species: Guinea pig
Remarks: Based on data from similar materials

Carcinogenicity

No data available

Germ cell mutagenicity

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result : negative
Remarks: Based on data from similar materials

Reproductive toxicity

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Effects on fertility : Species: Rat
Application Route : Ingestion
Symptoms : No effects on fertility
Remarks : Based on data from similar materials
Effects on foetal development : Species: Rat

Application Route

: Ingestion

Symptoms

: No effects on foetal development

Remarks: Based on data from similar materials

Reproductive toxicity - Assessment

: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments

STOT - single exposure

No data available

STOT - repeated exposure

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Exposure routes: Ingestion

Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

Dimethyl siloxane, dimethylvinylsiloxy and trimethoxysiloxy-terminated:

Species: Rat

Application Route: Ingestion

Remarks: Based on data from similar materials

Species: Rat

Application Route: Skin contact

Remarks: Based on data from similar materials

Aspiration toxicity

No data available

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

12. Ecological Information

Ecotoxicity

Components:

Vinyl, Methyl, Siloxane modified Zinc Oxide:

Toxicity to daphnia and other aquatic invertebrates

: EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Remarks: On basis of test data.

Dimethyl siloxane, dimethylvinylsiloxyl and trimethoxysiloxyl-terminated:

Toxicity to fish (Chronic toxicity)

: Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

: Remarks: No toxicity at the limit of solubility

Persistence and degradability

Components:

Dimethyl siloxane, dimethylvinylsiloxyl and trimethoxysiloxyl-terminated:

Biodegradability

: Result: Not readily biodegradable.

Biodegradation: 0 %

Exposure time: 28 d

Method: CO2 Evolution Test

Bioaccumulative potential

Components:

Dimethyl siloxane, dimethylvinylsiloxyl and trimethoxysiloxyl-terminated:

Partition coefficient: octanol/water

: log Pow: ≥ 4

Remarks: Based on data from similar materials

Mobility in soil

No data available

Other adverse effects

No data available

13. Disposal Considerations



Disposal methods

Waste from residues :Dispose of contents and container according to wastes control act.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

14. Transport Information

International Regulation

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG- Code

Not regulated as a dangerous good

UN number : Not applicable

Proper shipping name : Not applicable

Class : Not applicable

Subsidiary risk : Not applicable

Packing group : Not applicable

Labels : Not applicable

EmS Code : Not applicable

Marine pollutant : Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Not applicable

15. Regulatory Information

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Not applicable

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Chemical name	CAS-No.	Threshold limits (%)
Zinc and compounds	Not Assigned	>= 1 %

Controlled Substances Subject to Environment Monitoring

Not applicable

Controlled Substances Subject to Health Examination

Not applicable

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act

Priority Existing Chemicals

Not applicable

Toxic Chemicals

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Chemical name	CAS-No.	Group	Threshold limits (%)
Zinc and compounds	Not Assigned	Group II	>= 1 %

Accident Precaution Chemicals

Not applicable

**Dangerous Substances Safety Management Act
Not Applicable to Dangerous Materials**

Wastes Control Act

Industrial waste

Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries

The components of this product are reported in the following inventories:

NZIoC	: All ingredients listed or exempt.
REACH	: All ingredients are currently pre/registered or exempt under REACH. Please refer to section 1 for recommended uses.
IECSC	: All ingredients listed or exempt.
DSL	:This product contains one or more substances which are not on the Canadian Domestic Substances List (DSL). Import of this product into Canada has volume limitations.
TSCA	:All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
AICS	: One or more ingredients are not listed or exempt.
KECI	: All ingredients listed, exempt or notified.
TCSI	: All ingredients listed or exempt.

16. OTHER INFORMATION

Other information	: none
Further information	
Sources of key data used to compile the Safety Data Sheet	: Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
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