

SAFETY DATA SHEET



1. Identification

Product identifier Thermal Phase Change Materials

Other means of identification

Product code TG-V833

Recommended use Thermal Phase Change Materials

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier T-GLOBAL TECHNOLOGY CO., LTD

Address No.33, Ln. 50, Daren Rd., Taoyuan City, Taoyuan County 330,
Taiwan

Emergency telephone number +886-3-3618899

Issue date 2018/04/27

Revision date -

2. Hazard(s) identification

Emergency overview Low hazard under normal conditions.

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

GHS-classification Not classified.

Label elements

Hazard symbol None.

Signal word Not applicable.

Hazard statement Not applicable.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash thoroughly after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with
local authority requirements

Hazard(s) not otherwise classified (HNOC)

Supplemental information This product is not hazardous according to
OSHA 29 CFR 1910.1200 requirements,
therefore a hazard label does not apply.



3. Composition/information on ingredients

Substance/mixture Mixture

| Chemical name | CAS Number | Concentration (%) |
|--|-------------|-------------------|
| styrene butadiene rubber | 9003-55-8 | 40~44 |
| Rosin resin | 8050-09-7 | 10~12 |
| Carnauba wax | 8015-86-9 | 1~4 |
| High temperature resistant Epoxy resin | 129998-27-2 | 10~12 |
| Aluminum oxide | 1344-28-1 | 30~33 |
| Zn oxide | 1314-13-2 | 0~4 |

4. First-aid measures

| | |
|---------------------|--|
| Inhalation | Move to fresh air. Get medical attention if symptoms occur. |
| Skin contact | Wash skin with soap and water. Get medical attention if irritation persists after washing. |
| Eye contact | Flush thoroughly with water. If irritation occurs, get medical assistance. |
| Ingestion | Rinse mouth thoroughly. Get medical attention if any discomfort occurs. |

Most important symptoms/effects, acute and delayed

Under normal conditions of intended use, this material does not pose a risk to health

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

General information Get medical attention if any discomfort develops

5. Fire-fighting measures

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.



Specific hazards arising from the chemical None

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions Move containers from fire area if you can do so without risk.

General fire hazards This product is not flammable.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Sweep up or gather material and place in appropriate container for disposal.

For waste disposal, see section 13 of the SDS.

Environmental precautions Environmental Manager must be informed of all major spillages.

7. Handling and storage

Precautions for safe handling

Provide adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Observe good industrial hygiene practices. Wear appropriate personal protective equipment (See Section 8).

Conditions for safe storage, including any incompatibilities

Store in closed original container in a dry place. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits No occupational exposure limits noted for the ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Follow standard monitoring procedures.



Appropriate engineering controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Risk of contact: Wear approved safety goggles.

Skin protection

Hand protection Use suitable protective gloves if risk of skin contact. Suitable gloves can be recommended by the glove supplier.

Other If prolonged or repeated contact is likely, chemical resistant clothing is recommended.

Respiratory protection In case of inadequate ventilation, use respiratory protection.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

| | |
|-------------------------------------|---------------|
| Physical state | Solid |
| Form | Solid |
| Color | Gray |
| Odor | Not relevant. |
| Odor threshold | Not relevant. |
| pH | Not relevant. |
| Melting point/freezing point | Not relevant. |



| | |
|---|--------------------|
| Initial boiling point and boiling range | Not relevant. |
| Flash point | Not relevant. |
| Evaporation rate | Not relevant. |
| Flammability (solid, gas) | Not available. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower(%) | Not relevant. |
| Flammability limit - upper(%) | Not relevant. |
| Explosive limit - lower (%) | Not relevant. |
| Explosive limit - upper (%) | Not relevant. |
| Vapor pressure | Not relevant. |
| Vapor density | Not relevant. |
| Solubility(ies) | |
| Solubility (water) | Insoluble (<0.1%) |
| Solubility (solvents) | Not relevant. |
| Partition coefficient | Not relevant. |
| Auto-ignition temperature | Not relevant. |
| Decomposition temperature | Not relevant. |
| Viscosity | Not relevant. |
| Other information | |
| Bulk density | Not available. |
| Density | 3.4 |
| Explosive properties | Not relevant. |
| Oxidizing properties | Not relevant. |
| VOC | Not relevant. |

10. Stability and reactivity

Reactivity Chemical stability

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Conditions to avoid



Contact with incompatible materials.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products None.

11. Information on likely routes of exposure

Inhalation Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract.

Skin contact Prolonged skin contact may cause temporary irritation.

Eye contact May cause eye irritation on direct contact.

Ingestion Ingestion may cause irritation and malaise.

Symptoms related to the physical, chemical and toxicological characteristics

Under normal conditions of intended use, this material does not pose a risk to health.

Skin corrosion/irritation

Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation

Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

Inhalation of carbon black dust may cause cancer, however due to the physical form of the product,

inhalation of dust is not likely.



Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects None known.

Further information None known.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous.

Persistence and degradability No data available.

Bioaccumulative potential No data available.

Mobility in soil The product is insoluble in water.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging



Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT Not regulated as dangerous goods.

IATA Not regulated as dangerous goods.

IMDG Not regulated as dangerous goods.

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

This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

Trash Clearance Act., Air Pollution Protection Act., Enforcement Rules of the Labor Safety and Health Law, Prevention and Control of Water Pollution Act.

16. References

EPA: AQUIRE database

IARC Monographs. Overall Evaluation of Carcinogenicity

NLM: Hazardous Substances Data Base

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The information in this Safety Data Sheet (SDS) is believed to be correct as of the date issued. T-GLOBAL MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the T-GLOBAL product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a T-GLOBAL product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the T-GLOBAL product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.



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Unsuitable extinguishing media None known.



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| Odor | Not relevant. |
| Odor threshold | Not relevant. |
| pH | Not relevant. |
| Melting point/freezing point | Not relevant. |



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|---|--------------------|
| Initial boiling point and boiling range | Not relevant. |
| Flash point | Not relevant. |
| Evaporation rate | Not relevant. |
| Flammability (solid, gas) | Not available. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower(%) | Not relevant. |
| Flammability limit - upper(%) | Not relevant. |
| Explosive limit - lower (%) | Not relevant. |
| Explosive limit - upper (%) | Not relevant. |
| Vapor pressure | Not relevant. |
| Vapor density | Not relevant. |
| Solubility(ies) | |
| Solubility (water) | Insoluble (<0.1%) |
| Solubility (solvents) | Not relevant. |
| Partition coefficient | Not relevant. |
| Auto-ignition temperature | Not relevant. |
| Decomposition temperature | Not relevant. |
| Viscosity | Not relevant. |
| Other information | |
| Bulk density | Not available. |
| Density | 2.5 |
| Explosive properties | Not relevant. |
| Oxidizing properties | Not relevant. |
| VOC | Not relevant. |

10. Stability and reactivity

Reactivity Chemical stability

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Chronic effects None known.

Further information None known.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous.

Persistence and degradability No data available.

Bioaccumulative potential No data available.

Mobility in soil The product is insoluble in water.

Other adverse effects None known.

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