

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version	Revision Date:	MSDS Number:	Date of last issue: -
1.0	12/17/2014	980466-00001	Date of first issue: 12/17/2014

SECTION 1. IDENTIFICATION

Product name : DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND
000000000004044491

Product code : DCC000008382

Manufacturer or supplier's details

Company name of supplier : Dow Corning Corporation

Address : South Saginaw Road
Midland Michigan 48686

Telephone : (989) 496-6000

Emergency telephone : 24 Hour Emergency Telephone : (989) 496-5900
CHEMTREC : (800) 424-9300

Recommended use of the chemical and restrictions on use

Recommended use : Electrical industry and electronics

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Not a hazardous substance or mixture.

GHS Label element

Not a hazardous substance or mixture.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. -
No smoking.
Storage:
P403 Store in a well-ventilated place.

Other hazards

May generate flammable hydrogen gas. Avoid contact with water, alcohols, acidic, basic, or oxidizing materials.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Silicone compound

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1.0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
----------------	------------------------------	------------------------------	--

Hazardous ingredients

No hazardous ingredients

SECTION 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.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Alcohol-resistant foam Carbon dioxide (CO2) Water mist
Unsuitable extinguishing media	: Dry chemical
Specific hazards during fire fighting	: Exposure to combustion products may be a hazard to health. Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket.
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. Do not allow extinguishing medium to contact container con-

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Version	Revision Date:	MSDS Number:	Date of last issue: -
1.0	12/17/2014	980466-00001	Date of first issue: 12/17/2014

tents. Most fire extinguishing media will cause hydrogen evolution, and once the fire is put out, may accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Remove undamaged containers from fire area if it is safe to do so.

Evacuate area.

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

SECTION 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 materials 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.
Materials in contact with water, moisture, acids or bases have the potential to generate hydrogen gas. Recovered material should be stored in a vented container.
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.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version	Revision Date:	MSDS Number:	Date of last issue: -
1.0	12/17/2014	980466-00001	Date of first issue: 12/17/2014

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| Local/Total ventilation | : Use only with adequate ventilation. |
| Advice on safe handling | : Handle in accordance with good industrial hygiene and safety practice.
Keep away from water.
Protect from moisture.
Take care to prevent spills, waste and minimize release to the environment. |
| Conditions for safe storage | : Keep in properly labeled containers.
Store in a closed container.
Store in accordance with the particular national regulations.
Product may evolve minute quantities of flammable hydrogen gas which can accumulate. Adequately ventilate to maintain vapors well below flammability limits and exposure guidelines.
Do not repackage. Clogged container vents may increase pressure build up. |
| Materials to avoid | : Do not store with the following product types:
Strong oxidizing agents |
| Packaging material | : Unsuitable material: Do not store in or use containers except the original product package. |

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

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| Engineering measures | : Processing may form hazardous compounds (see section 10).
Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.
Dust formation may be relevant in the processing of this product. In addition to substance-specific OELs, general limitations of concentrations of particulates in the air at workplaces have to be considered in workplace risk assessment.
Relevant limits include: OSHA PEL for Particulates Not Otherwise Regulated of 15 mg/m ³ - total dust, 5 mg/m ³ - respirable fraction; and ACGIH TWA for Particles (insoluble or poorly soluble) Not Otherwise Specified of 3 mg/m ³ - respirable particles, 10 mg/m ³ - inhalable particles. |
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Personal protective equipment

- | | |
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| Respiratory protection | : No personal respiratory protective equipment normally required. |
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DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1. 0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
-----------------	------------------------------	------------------------------	--

Hand protection

Remarks : Wash hands before breaks and at the end of 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.
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance

: Grease

Color

: gray

Odor

: slight

Odor Threshold

: No data available

pH

: Not applicable

Melting point/freezing point

: No data available

Initial boiling point and boiling range

: Not applicable

Flash point

: Not applicable

Evaporation rate

: Not applicable

Flammability (solid, gas)

: Not classified as a flammability hazard

Upper explosion limit

: No data available

Lower explosion limit

: No data available

Vapor pressure

: Not applicable

Relative vapor density

: No data available

Relative density

: 3.4

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version	Revision Date:	MSDS Number:	Date of last issue: -
1.0	12/17/2014	980466-00001	Date of first issue: 12/17/2014

Solubility(ies)	
Water solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: No data available
Thermal decomposition	: 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

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Contact with water liberates highly flammable gases.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Product may evolve flammable hydrogen gas on contact with water, alcohols, acidic or basic materials, many metals or metallic compounds and can form explosive mixtures in air. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid	: Exposure to moisture.
Incompatible materials	: Oxidizing agents
Hazardous decomposition products	
Thermal decomposition	: Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Skin contact
Ingestion
Eye contact

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1.0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
----------------	------------------------------	------------------------------	--

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization

Skin sensitization: Not classified based on available information.

Respiratory sensitization: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information**Product:**

Remarks: Product contains tetramethoxysilane which is highly toxic by inhalation. The 4 hour LC50 in rats is 63 ppm. Severe eye injury ranging from eye pain to blindness and eye loss has resulted from occupational exposure to tetramethoxysilane. Exposure to air concentrations of 200 to 300 ppm for 15 minutes can induce minimal eye lesions and exposure at 1000 ppm can produce corneal damage.

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version	Revision Date:	MSDS Number:	Date of last issue: -
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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Resource Conservation and Recovery Act (RCRA) : When a decision is made to discard this material as supplied, it is classified as a RCRA hazardous waste.

Waste Code : D003: Reactivity

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 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

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

Not applicable for product as supplied.

Domestic regulation

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1.0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
----------------	------------------------------	------------------------------	--

49 CFR

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Treated Zinc Oxide	Proprietary Ingredient	29 %
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US State Regulations**Pennsylvania Right To Know**

Treated alumina	Proprietary Ingredient	50 - 70 %
Treated Zinc Oxide	Proprietary Ingredient	20 - 30 %
Dimethyl, Methyldecyl Siloxane	134971-32-7	1 - 5 %

New Jersey Right To Know

Treated alumina	Proprietary Ingredient	50 - 70 %
Treated Zinc Oxide	Proprietary Ingredient	20 - 30 %
Dimethyl, Methyldecyl Siloxane	134971-32-7	1 - 5 %

California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.**The ingredients of this product are reported in the following inventories:**

KECI : All ingredients listed, exempt or notified.

REACH : All ingredients (pre-)registered or exempt.

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1.0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
----------------	------------------------------	------------------------------	--

- IECSC : All ingredients listed or exempt.
- TSCA : All chemical substances in this material are included on or exempted from listing on the Toxic Substances Control Act 8(b) Inventory. One or more chemical substances in this material meet the polymer exemption criteria in 40 CFR 723.250.
- ENCS/ISHL : Some components are not listed or not identified on ENCS/ISHL.
- PICCS : Consult your local Dow Corning office.

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

Additional regulatory information

Treated alumina Proprietary Ingredient

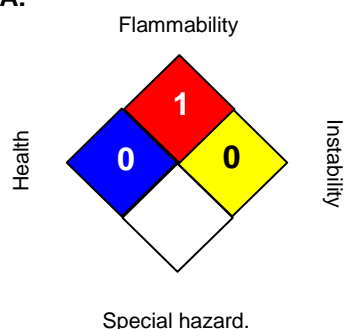
The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for the proprietary metal oxide in this product at 40 CFR 721.10044. For further information contact Dow Corning Regulatory Compliance.

Registration: Trade Secret

Component	Registration number
Treated alumina	NJ TSRN 14962700-6269P
Treated Zinc Oxide	NJ TSRN 14962700-6530P

DOW CORNING(R) TC-5021 THERMALLY CONDUCTIVE COMPOUND

Version 1.0	Revision Date: 12/17/2014	MSDS Number: 980466-00001	Date of last issue: - Date of first issue: 12/17/2014
----------------	------------------------------	------------------------------	--

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS III:**

HEALTH	0
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 12/17/2014

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8