

CHEMTRONICS[®] Technical Data Sheet

TDS # CT40

CircuitWorks[®] Heat Sink Grease

PRODUCT DESCRIPTION

CircuitWorks[®] Heat Sink Grease silicone compound facilitates heat transfer away from electrical/electronic components. This heavy consistency material is thickened with a heat conductive metal oxide filler to maintain a positive heat sink seal in electrical/electronic equipment.


- Excellent conductivity
- Meets MIL-C-47113
- Noncorrosive
- High dielectric strength
- Low bleed
- Stable from -73°C to 200°C
- Nonflammable

TYPICAL APPLICATIONS

CircuitWorks[®] Heat Sink Grease may be used for electronics and applications including:

- Effective Thermal Coupler For Any Heat Sink Device
- Nonflammable Coating Protection
- High Voltage Corona Protection
- Excellent for Improving Readings on Contact Type Thermocouples

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Color	White
Specific Gravity @ 25°C (77°F)	2.6
Usable Temperature Range	-73°C (-100°F) to 200°C (392°F)
Dielectric Strength, v/mil	500
Dielectric Constant @ 100 Hz	4.4
Dissipation Factor @ 100 Hz	0.005
Volume Resistivity, ohm-cm	1 x 10 ¹⁴
Arc Resistance, seconds	120
Thermal Conductivity,	
Cal-cm/sec-cm² -°C	1.5 x 10 ⁻³
BTU-in/hr-ft² -°F	4.35
W/m²°K	0.63
Shelflife	5 years
RoHS/WEEE	
Status	

COMPATIBILITY

CircuitWorks[®] Heat Sink Grease is generally compatible with most materials used in printed circuit board fabrication. As with any silicone compound, compatibility with substrate must be determined on a non-critical area prior to use.

Material	Compatibility
Ceramic	Good
Clean Metals	Good
Glass	Good
Natural Fibers	Good
Silicone Resins	Good
Painted Surfaces	Good
Plastic Surfaces	Good
Synthetic Fibers	Good
Vulcanized Silicone Rubber	Good
Wood	Good

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	0.0%
HCFC	0.0%	HFC	0.0%
Cl. Solv.	0.0%	ODP	0.00

CFC, HCFC, CL. SOLV., VOC, and HFC numbers shown are the content by weight. Ozone depletion potential (ODP) is determined in accordance with the Montreal Protocol and U.S. Clean Air Act of 1990.

NOTE:

This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. ITW CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

USAGE INSTRUCTIONS

For industrial use only.

Read MSDS carefully prior to use.

Contact ITW Chemtronics® for complete usage and application instructions. When using CircuitWorks® Heat Sink Grease, follow these guidelines: Apply to all mounting and threaded surfaces of the device and the chassis. Apply by pushing product ahead of neck.

Dispensing: CircuitWorks® Heat Sink Grease is a ready-to-use one-component material. Collapsible tubes may be squeezed by hand or with the aid of mechanical wringers.

AVAILABILITY

CT40-5 5 oz. Tube

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SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification**CIRCUITWORKS® HEAT SINK GREASE****Product Code:** CT40-5, CT405B**SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS#	Wt. % Range
Polymethylsiloxane Fluid	63148-62-9	25.0-30.0
Zinc Oxide	1314-13-2	70.0-75.0
Fumed Silica	112945-52-5	1.0-5.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: White, opaque paste; no odor. This product is nonflammable. Paste will cause acute but mild irritation of the eyes and skin under repeated or prolonged exposure.

Potential Health Effects:

Eyes: Product is irritating and can cause acute but mild tearing, reddening accompanied by a stinging sensation.

Skin: Contact with product can cause acute but mild skin irritation.

Ingestion: Irritating to mouth, throat and stomach. May cause vomiting, acute abdominal pain and diarrhea.

Inhalation: No known health effects from inhalation.

Pre-Existing Medical Conditions Aggravated by Exposure: Skin, eye.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel if irritation develops persists.

Skin: Flush affected area well with water. Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists. Wash clothing separately before reuse.

Ingestion: Do not induce vomiting, but give one or two glasses of water to dilute material and get immediate medical attention.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: >500 F (260C) (TCC)

LEL/UEL: Not established (% by volume in air)

Extinguishing media: Use alcohol foam, carbon dioxide, water spray, or dry chemical when fighting fires involving this material.

Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus (pressure-demand, OSHA/NIOSH approved or equivalent) and full protective gear. Cool fire-exposed containers with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Shut off leak if possible and safe to do so. Wear self-contained breathing apparatus and appropriate personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal. Do not flush to sewer. Avoid runoff into storm sewers and ditches which lead to waterways.

Small Spills: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact of product with eyes, skin, and clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing dried product dust. Do not reuse this container. Store in a cool dry place away from heat, sparks and flame. Keep container closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.**SECTION 8: EXPOSURE CONTROLS/PERSONNEL PROTECTION**

Exposure Guidelines:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	OTHER
Polymethylsiloxane	NA	NA	NA
Zinc Oxide	2 mg/m3 (dust)	15 mg/m3 (dust)	10 mg/m3 (dust) STEL
Fumed Silica	10 mg/m3 (PNOC dust)	NA	6 mg/m3 OEL

NA = not available

PNOC = Particles not otherwise classified

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields (or goggles) and rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:	NFPA	HMIS
Health	1	1
Flammability	0	0
Reactivity	0	0
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: White, opaque paste
Odor: None
pH: NA
Vapor Pressure: NA
Vapor Density: NA
Boiling Point: >300 F (149C)
Melting Point: N/A

Solubility in Water: Negligible
Specific Gravity: 2.60 (Water =1)
Evaporation Rate: < <1
 (Butyl acetate=1)
Viscosity: > 1 (water=1)
Percent Volatile: <1 %

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable. Conditions to Avoid: None
Incompatibility: Do not mix with amines, strong bases or strong oxidizing agents.
Products of Decomposition: Thermal decomposition at temperatures above 575 OF may release silicon dioxide and carbon dioxide.
Hazardous Polymerization: Not likely to occur.
Conditions to Avoid: Exposure to amines, bases or strong oxidizing agents.

SECTION 11: TOXICOLOGICAL INFORMATION

<u>Inhalation:</u>		<u>Ingestion:</u>	
Zinc oxide	Human TCLo 600 mg/m3	Polymethylsiloxane Fluid	LD50 rat > 24,000 mg/kg
		Fumed Silica	LD50 rat 3160 mg/kg
		Zinc oxide	LD50 mouse 7950 mg/kg
<u>Skin:</u>		<u>Eye:</u>	
Zinc oxide	Rabbit 500 mg/24 hr. MLD	Zinc oxide	Rabbit 500 mg/24 hr. MLD
Cancer Information: No ingredients listed as human carcinogens by NTP or IARC			
Reproductive effects: none		Teratogenic effects: none	
		Mutagenic effects: none	

SECTION 12: ECOLOGICAL INFORMATION

Environmental Impact Information

Avoid runoff into storm sewers and ditches, which lead to waterways. Water runoff can cause environmental damage.

REPORTING

US regulations require reporting spills of this material that could reach any surface waters. The toll-free number for the US Coast Guard National Response Center is: **1-800-424-8802**

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATION

Air and Ground Shipments: Proper Shipping Name
 Adhesives, sealants
 Not Regulated

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).

This information should be included on all MSDSs copied and distributed for this material.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All ingredients of this product are listed on the TSCA Inventory.

WHMIS: Not hazardous. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Normal ventilation for standard manufacturing practices is usually adequate.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.