



SAFETY DATA SHEET

Prepared to OSHA, ACC, ANSI, NOHSC, WHMIS, 2001/58 & 1272/2008/EC Standards SDS Revision: 1.1 SDS Revision Date: 3/14/2018

1. PRODUCT & COMPANY IDENTIFICATION

1.1	Product Name:	CAIG SILICONE HEAT SINK COMPOUND #HSC67
1.2	Chemical Name:	Silicone Compound
1.3	Synonyms:	P/N HSC67-6G
1.4	Trade Names:	CAIG HSC67 Silicone Heat Sink Compound #HSC67
1.5	Product Uses & Restrictions:	Heat transfer agent
1.6	Distributor's Name:	CAIG Laboratories, Inc.
1.7	Distributor's Address:	12200 Thatcher Court, Poway, CA 92064-6876 USA
1.8	Emergency Phone:	CHEMTREC: +1 (703) 527-3887 / +1 (800) 424-9300 (CCN205206)
1.9	Business Phone / Fax:	+1 (800) 224-4123

2. HAZARDS IDENTIFICATION

2.1	Hazard Identification:	This product is classified as a HAZARDOUS SUBSTANCE and as DANGEROUS GOODS according to the classification criteria of NOHSC: 1088 (2004) and ADG Code (Australia). WARNING! VERY FATAL TO AQUATIC LIFE WITH LONG LASTING EFFECTS. MAY BE HARMFUL IF SWALLOWED. Classification: Chronic Aquatic 1; Acute Tox. 5
2.2	Label Elements:	Hazard Statements (H): H410 – Very toxic to aquatic life with long lasting effects. H303 – May be harmful if swallowed. Precautionary Statements (P): P101 – If medical advice is needed, have product container or label at hand. P102 – Keep out of reach of children. P103 – Read label before use. P273 – Avoid release to the environment. P312 – Call a POISON CENTER/doctor if you feel unwell. P391 – Collect spillage. P501 – Dispose of contents/container to a licensed treatment, storage or disposal facility (TSDF).
2.3	Other Warnings:	KEEP OUT OF REACH OF CHILDREN.



3. COMPOSITION & INGREDIENT INFORMATION

CHEMICAL NAME(S)	CAS No.	RTECS No.	EINECS No.	%	EXPOSURE LIMITS IN AIR (mg/m ³)								OTHER
					ACGIH		NOHSC			OSHA			
					ppm	ppm	ppm	ppm	ppm	ppm	ppm		
ZINC OXIDE	1314-13-2	ZH4810000	215-222-5	45-75	TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	RESP FRAC
					2	10	10	NF	NF	5	15	500	
PROPRIETARY INGREDIENTS	NA	NA	NA	BAL	NA	NA	NF	NF	NF	NA	NA	NA	

4. FIRST AID MEASURES

4.1	First Aid:	Ingestion: If ingested, do not induce vomiting. If product has been swallowed, drink plenty of water or milk IMMEDIATELY. If the patient is vomiting, continue to offer water or milk. Never give water or milk to an unconscious person. Contact the nearest Poison Control Center or local emergency number. Provide an estimate of the time at which the material was ingested and the amount of the substance that was swallowed. Eyes: Splashes are not likely; however, if product gets in the eyes, flush with copious amounts of lukewarm water for at least 15 minutes lifting upper and lower lids, occasionally. If irritation persists repeat flushing. Get medical attention. Skin: If irritation occurs, discontinue use. Wash thoroughly with soap and water. Inhalation: Remove victim to fresh air at once. If breathing difficult, administer oxygen. If breathing stops give artificial respiration. Keep person warm, quiet and get medical attention.
4.2	Effects of Exposure:	Ingestion: If product is swallowed, may cause nausea, vomiting and/or diarrhea. Eyes: Moderately irritating to the eyes. Symptoms of overexposure may include redness, itching, irritation and watering. Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals. Inhalation: None expected.
4.3	Symptoms of Overexposure:	Ingestion: If product is swallowed, may cause gastrointestinal disturbance. Eyes: Exposure to dust may cause eye irritation. Symptoms of overexposure may include redness, itching, irritation and watering. Skin: May be irritating to skin. The product can cause allergic skin reactions (e.g., rashes, welts, dermatitis) in some sensitive individuals. Inhalation: Coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract.



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4. FIRST AID MEASURES – cont'd

4.4	Acute Health Effects:	Moderate irritation to eyes and skin near affected areas. Additionally, high concentrations of dust can cause coughing, wheezing, shortness of breath, impaired pulmonary function. Irritation or soreness in throat, nose and respiratory tract.
4.5	Chronic Health Effects:	Non-irritating when used as directed. Possible allergic dermatitis in some sensitive individuals
4.6	Target Organs:	Eyes, Skin.
4.7	Medical Conditions Aggravated by Exposure:	Pre-existing dermatitis, other skin conditions.

HEALTH		1
FLAMMABILITY		0
PHYSICAL HAZARDS		0
PROTECTIVE EQUIPMENT		B
EYES	SKIN	

5. FIREFIGHTING MEASURES

5.1	Fire & Explosion Hazards:	This material can burn but will not readily ignite. However, if involved in a fire, this product may decompose at high temperatures to form toxic gases (e.g., Metal oxides, Carbon oxides, Silicon oxides, Formaldehyde).	
5.2	Extinguishing Methods:	CO ₂ , Dry Chemical, Alcohol Foam, Dry Chemical.	
5.3	Firefighting Procedures:	Keep containers cool until well after the fire is out. Fight fires as for surrounding materials. As in any fire, wear MSHA/NIOSH approved self-contained breathing apparatus (pressure-demand) and full protective gear. Keep containers cool until well after the fire is out. Use water spray to cool fire-exposed surfaces and to protect personal. Fight fire upwind. Avoid spraying water directly into storage containers because of danger of boil-over. Prevent runoff from fire control or dilution from entering sewers, drains, drinking water supply, or any natural waterway. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.	

6. ACCIDENTAL RELEASE MEASURES

6.1	Spills:	Before cleaning any spill individuals involved in cleanup must wear appropriate Personal Protective Equipment. Plastic or rubber gloves, respirator, eye protection and apron may be required for clean-up of large spills. No special precautions are required for intact packaging containing this product. <u>Small spills:</u> Soak up with inert absorbent material <u>Large spills:</u> Provide diking or other appropriate containment to keep material from spreading. Clean up remaining materials with suitable absorbent. Keep spills and cleaning runoffs out of drains, municipal sewers and open bodies of water. Store recovered material and diking in appropriate marked container. Local or national regulations may apply to releases of this material as well as material and items employed in cleanup.
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7. HANDLING & STORAGE INFORMATION

7.1	Work & Hygiene Practices:	Do not eat, drink or smoke when handling this product. Wash unintentional residues with soap and warm water.
7.2	Storage & Handling:	The product must be stored in its original packing in a well-ventilated area away from dust, sunlight and excessive heat.
7.3	Special Precautions:	Clean all spills promptly. Keep spills and cleaning runoffs out of drains, municipal sewers and open bodies of water.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

8.1	Exposure Limits: ppm (mg/m ³)	CHEMICAL NAME(S)	ACGIH		NOHSC			OSHA			OTHER
			TLV	STEL	ES-TWA	ES-STEL	ES-PEAK	PEL	STEL	IDLH	
		ZINC OXIDE	2	10	10	NF	NF	5	15	500	RESP FRAC
8.2	Ventilation & Engineering Controls:	General mechanical (e.g., fans) or natural ventilation is sufficient when this product is in use. Use local or general exhaust ventilation to effectively remove and prevent buildup of vapors or mist generated from the handling of this product. Ensure appropriate decontamination equipment is available (e.g., sink, safety shower, eye-wash station).									
8.3	Respiratory Protection:	None required under normal conditions of use. In instances where respiratory protection is needed, use only protection authorized by 29 CFR §1910.134, applicable U.S. State regulations, or the Canadian CAS Standard Z94.4-93 and applicable standards of Canadian Provinces, EC member States, or Australia.									
8.4	Eye Protection:	Avoid eye contact. None required under normal conditions of use. Safety glasses could be used when handling or using large quantities of this product.									
8.5	Hand Protection:	None required under normal conditions of use. However, may cause skin irritation in some sensitive individuals. When handling large quantities (e.g., ≥ 1 gallon (3.8 L)), wear rubber, nitrile or impervious plastic gloves.									
8.6	Body Protection:	No apron required when handling small quantities. When handling large quantities (e.g., ≥ 5 lbs), eye wash stations and deluge showers should be available. Upon completion of work activities involving large quantities of this product, wash any exposed areas thoroughly with soap and water.									



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9. PHYSICAL & CHEMICAL PROPERTIES

9.1	Appearance:	White paste
9.2	Odor:	NA
9.3	Odor Threshold:	NA
9.4	pH:	NA
9.5	Melting Point/Freezing Point:	NA
9.6	Initial Boiling Point/Boiling Range:	NA
9.7	Flashpoint:	NA
9.8	Upper/Lower Flammability Limits:	LEL: NA; UEL: NA
9.9	Vapor Pressure:	NA
9.10	Vapor Density:	NA
9.11	Relative Density:	2.0
9.12	Solubility:	NA
9.13	Partition Coefficient (log P _{ow}):	NA
9.14	Autoignition Temperature:	NA
9.15	Decomposition Temperature:	NA
9.16	Viscosity:	NA
9.17	Other Information:	NA

10. STABILITY & REACTIVITY

10.1	Stability:	Stable under normal conditions; unstable with heat or contamination.
10.2	Hazardous Decomposition Products:	If involved in a fire, this product may decompose at high temperatures to form toxic gases (e.g., Metal oxides, Carbon oxides, Silicon oxides, Formaldehyde)..
10.3	Hazardous Polymerization:	Will not occur.
10.4	Conditions to Avoid:	Open flames, sparks, high heat, incompatible substances and direct sunlight.
10.5	Incompatible Substances:	Avoid extreme heat and ignition sources. Store away from oxidizers.

11. TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Inhalation: YES	Absorption: YES	Ingestion: YES
11.2	Toxicity Data:	This product has NOT been tested on animals to obtain toxicology data. Toxicology data, found in scientific literature, is available for some of the components of the product and is presented below: Zinc oxide: LD ₅₀ (oral, rat) > 5,000 mg/kg; LD ₅₀ (inhalation, rat) > 5.7 mg/kg		
11.3	Acute Toxicity:	See section 4.4		
11.4	Chronic Toxicity:	See section 4.5		
11.5	Suspected Carcinogen:	This product does not contain any chemicals known to the State of California to cause cancer or other reproductive harm. For more information go to www.P65Warnings.ca.gov .		
11.6	Reproductive Toxicity:	This product is not reported to produce reproductive toxicity in humans.		
	Mutagenicity:	This product is not reported to produce mutagenic effects in humans.		
	Embryotoxicity:	This product is not reported to produce embryotoxic effects in humans.		
	Teratogenicity:	This product is not reported to cause teratogenic effects in humans.		
	Reproductive Toxicity:	This product is not reported to cause reproductive effects in humans.		
11.7	Irritancy of Product:	See section 4.2		
11.8	Biological Exposure Indices:	NE		
11.9	Physician Recommendations:	Treat symptomatically.		

12. ECOLOGICAL INFORMATION








12.1	Environmental Stability:	Specific environmental data available for the components of this product are as follows: Zinc Oxide: LC ₅₀ (Oncorhynchus mykiss(rainbow trout)):3320-780 µg/l exposure time 96 hours (based on data from similar materials); EC ₅₀ (Daphnia magna (water flea)): 6.9-16.2 mg/l exposure time 48 hours. Method: OECD Test Guideline 202; EC ₅₀ (Selenastrum capricornutum (green algae)): 136 µg/l exposure time 72 hours. Bioaccumulation: Fish Bioconcentration factor (BCF): 177.
12.2	Effects on Plants & Animals:	There are no specific data available for this product.
12.3	Effects on Aquatic Life:	There are no specific data available for this product; however, very large releases of this product may be harmful or fatal to overexposed aquatic life.

13. DISPOSAL CONSIDERATIONS


13.1	Waste Disposal:	Products covered by this SDS, in their purchased form, when disposed as waste, are considered non hazardous waste according to Federal RCRA regulations (40 CFR 261). Disposal should be in accordance with local, state and federal regulations. Dispose of in accordance with federal, state and local regulations.
13.2	Special Considerations:	NA

14. TRANSPORTATION INFORMATION

The basic description (ID Number, proper shipping name, hazard class & division, packing group) is shown for each mode of transportation. Additional descriptive information may be required by 49 CFR, IATA/ICAO, IMDG and the CTDGR.

14.1	49 CFR (GND):	NOT REGULATED	
14.2	IATA (AIR):	ID8000, CONSUMER COMMODITY, 9 (IP VOL ≤ 5.0 kg) UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G)	
14.3	IMDG (OCN):	NOT REGULATED (IP VOL ≤ 10 g) per SP 335 UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G) MARINE POLLUTANT	
14.4	TDGR (Canadian GND):	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G) MARINE POLLUTANT	
14.5	ADR/RID (EU):	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G) MARINE POLLUTANT	
14.6	SCT (MEXICO):	NOT REGULATED (IP VOL ≤ 10 g) UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G) MARINE POLLUTANT	
14.7	ADGR (AUS):	NOT REGULATED (IP VOL ≤ 10 g) UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID N.O.S., (ZINC OXIDE), 9, III (LTD QTY, IP VOL ≤ 5.0 kg, PKG ≤ 30 kg G) MARINE POLLUTANT	
14.8	EXCEPTED QUANTITY	This product may also be shipped as an Excepted Quantity (IP VOL ≤ 30 mL, PKG ≤ 500 mL)	

15. REGULATORY INFORMATION

15.1	SARA Reporting Requirements:	This product does not contain any substances subject to SARA Title III, section 313 reporting requirements.	
15.2	SARA Threshold Planning Quantity:	There are no specific Threshold Planning Quantities for the components of this product.	
15.3	TSCA Inventory Status:	The components of this product are listed on the TSCA Inventory.	
15.4	CERCLA Reportable Quantity (RQ):	NA	
15.5	Other Federal Requirements:	NA	
15.6	Other Canadian Regulations:	This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR. The components of this product are listed on the DSL/NDSL. None of the components of this product are listed on the Priorities Substances List. WHMIS D2B (Other Toxic Effects).	
15.7	State Regulatory Information:	<u>Zinc Oxide</u> is found on the following state criteria lists: Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List,), Minnesota Hazardous Substances List (MN), Pennsylvania Right-to-Know List (PA) and Washington Permissible Exposures List (WA). No ingredients in this product, present in a concentration of 1.0% or greater, are listed on any of the following state criteria lists: California Proposition 65 (CA65), Delaware Air Quality Management List (DE), Florida Toxic Substances List (FL), Massachusetts Hazardous Substances List (MA), Michigan Critical Substances List (MI), Minnesota Hazardous Substances List (MN), New Jersey Right-to-Know List (NJ), New York Hazardous Substances List (NY), Pennsylvania Right-to-Know List (PA), Washington Permissible Exposures List (WA), Wisconsin Hazardous Substances List (WI).	
15.8	Other Requirements:	This product does not contain any chemicals known to the State of California to cause cancer or other reproductive harm. For more information go to www.P65Warnings.ca.gov .	



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16. OTHER INFORMATION

16.1	Other Information:	WARNING! VERY FATAL TO AQUATIC LIFE WITH LONG LASTING EFFECTS. MAY BE HARMFUL IF SWALLOWED. Use only as directed. If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. Avoid release to the environment. Call a POISON CENTER/doctor if you feel unwell. Collect spillage. Avoid release to the environment. KEEP LOCKED UP AND OUT OF REACH OF CHILDREN.	
16.2	Terms & Definitions:	See last page of this Safety Data Sheet.	
16.3	Disclaimer:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR §1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of ShipMate's & CAIG Laboratories, Inc.'s knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness is not guaranteed and no warranties of any type, either expressed or implied, are provided. The information contained herein relates only to the specific product(s). If this product(s) is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.	
16.4	Prepared for:	CAIG Laboratories, Inc. 12200 Thatcher Court Poway, CA 92064-6876 Tel: +1 (800) CAIG-123 (244-4123) Fax: +1 (858) 486-8398 fax http://www.caig.com/	
16.5	Prepared by:	ShipMate, Inc. P.O. Box 787 Sisters, Oregon 97759-0787 USA Tel: +1 (310) 370-3600 Fax: +1 (310) 370-5700 http://www.shipmate.com	



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DEFINITION OF TERMS

A large number of abbreviations and acronyms appear on a SDS. Some of these that are commonly used include the following:

GENERAL INFORMATION:

CAS No.	Chemical Abstract Service Number
RTECS No.	Registry of Toxic Effects of Chemical Substances Number
EINECS No.	European Inventory of Existing Commercial Chemical Substances Number

EXPOSURE LIMITS IN AIR:

ACGIH	American Conference on Governmental Industrial Hygienists
IDLH	Immediately Dangerous to Life and Health
NOHSC	National Occupational Health and Safety Commission (Australia)
OSHA	U.S. Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average

FIRST AID MEASURES:

CPR	Cardiopulmonary resuscitation - method in which a person whose heart has stopped receives manual chest compressions and breathing to circulate blood and provide oxygen to the body.
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HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: HMIS

HEALTH, FLAMMABILITY & REACTIVITY RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard

HEALTH
FLAMMABILITY
PHYSICAL HAZARDS
PERSONAL PROTECTION

PERSONAL PROTECTION RATINGS:

A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
X	Consult your supervisor or SOPs for special handling directions.

Safety Glasses	Splash Goggles	Face Shield & Protective Eyewear	Gloves
Boots	Protective Apron	Protective Clothing & Full Suit	Dust Respirator
Full Face Respirator	Dust & Vapor Half-Mask Respirator	Full Face Respirator	Airline Hood/Mask or SCBA

OTHER STANDARD ABBREVIATIONS:

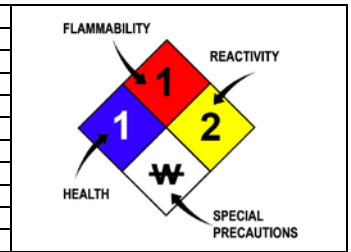
Carc	Carcinogenic
Irrit	Irritant
NA	Not Available
NR	No Results
ND	Not Determined
NE	Not Established
NF	Not Found
SCBA	Self-Contained Breathing Apparatus
Sens	Sensitization
STOT RE	Specific Target Organ Toxicity – Repeat Exposure
STOT SE	Specific Target Organ Toxicity – Single Exposure

NATIONAL FIRE PROTECTION ASSOCIATION: NFPA

FLAMMABILITY LIMITS IN AIR:	
Autoignition Temperature	Minimum temperature required to initiate combustion in air with no other source of ignition
LEL	Lower Explosive Limit - lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source
UEL	Upper Explosive Limit - highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source

HAZARD RATINGS:

0	Minimal Hazard
1	Slight Hazard
2	Moderate Hazard
3	Severe Hazard
4	Extreme Hazard
ACD	Acidic
ALK	Alkaline
COR	Corrosive
W	Use No Water
OX	Oxidizer
TREFOIL	Radioactive



TOXICOLOGICAL INFORMATION:

LD ₅₀	Lethal Dose (solids & liquids) which kills 50% of the exposed animals
LC ₅₀	Lethal concentration (gases) which kills 50% of the exposed animal
ppm	Concentration expressed in parts of material per million parts
TD ₁₀	Lowest dose to cause a symptom
TCLo	Lowest concentration to cause a symptom
TD ₁₀ , LD ₁₀ , & LD ₀₁ or TC, TC ₀₁ , LC ₁₀ , & LC ₀₁	Lowest dose (or concentration) to cause lethal or toxic effects
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances
BCF	Bioconcentration Factor
TL _m	Median threshold limit
log K _{ow} or log K _{oc}	Coefficient of Oil/Water Distribution

REGULATORY INFORMATION:

WHMIS	Canadian Workplace Hazardous Material Information System
DOT	U.S. Department of Transportation
TC	Transport Canada
EPA	U.S. Environmental Protection Agency
DSL	Canadian Domestic Substance List
NDSL	Canadian Non-Domestic Substance List
PSL	Canadian Priority Substances List
TSCA	U.S. Toxic Substance Control Act
EU	European Union (European Union Directive 67/548/EEC)
WGK	Wassergefährdungsklassen (German Water Hazard Class)

WORKPLACE HAZARDOUS MATERIALS IDENTIFICATION (WHMIS) SYSTEM:

Class A	Class B	Class C	Class D1	Class D2	Class D3	Class E	Class F
Compressed	Flammable	Oxidizing	Toxic	Irritation	Infectious	Corrosive	Reactive

CLP/GHS (1272/2008/EC) PICTOGRAMS:

GHS01	GHS02	GHS03	GHS04	GHS05	GHS06	GHS07	GHS08	GHS09
Explosive	Flammable	Oxidizer	Pressurized	Corrosive	Toxic	Harmful Irritating	Health Hazard	Environment