MATERIAL SAFETY DATA

CSL 850 Heat Sink Compound

Reviewed April 8, 2010 **MSDS NO. 320**

I PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME	**CSL 850 Heat Sink Compound**
CHEMICAL NAME	**Not Applicable**
CHEMICAL FORMULA	**Silicone Compound**
MOLECULAR WEIGHT	**Polymer**
MATERIAL USES	**Silicone Compound is designed for electronic devices to heat sink.**
MANUFACTURER	**CSL Silicones Inc. 144 Woodlawn Road West Guelph, ON N1H 1B5 Canada**
TELEPHONE	**1-519-836-9044**
FAX	**1-519-836-9069**
EMERGENCY TELEPHONE	**1-519-836-9044**

II HAZARDS IDENTIFICATION

A. HAZARDOUS INGREDIENTS OF MATERIAL

None

B. EFFECTS OF CHRONIC EXPOSURE

Health Effects	**Human pulmonary system effects**
Toxicological Data	**Lethal dose value (calculated based on zinc oxide) 725 mg/kg oral human.**
Carcinogenicity Data	**The ingredients of this product are not listed as carcinogens by National Toxicology Program, and have not been evaluated by the International Agency for Research on Cancer or the American Conference of Government Industrial Hygienists.**
Reproductive Data	**Octamethylcyclotetrasiloxane (in concentration of 500 to 700 ppm) has shown reproductive effects in laboratory animals. No available information of adverse reproductive effects of other ingredients of this product**
Mutagenicity Data	**No information available and no adverse mutagenic effects are anticipated**
Teratogenicity Data	**No information available and no adverse teratogenic effects are anticipated**
Synergistic Products	**None Known**

C. EFFECTS OF ACUTE EXPOSURE

Inhalation	**No evidence of adverse effects from available information, and none anticipated due to the nature of the mixture.**
Eyes	**May cause mild irritation, but no significant effects.**
Skin	**May cause mild irritation, but no significant effects.**

Ingestion	**Moderately toxic. Can result in consequent pain, nausea, vomiting, thirst and diarrhea.**

D. HAZARD SYMBOLS

Harmful if swallowed

III COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	%	CAS NUMBER	ACGIH TLV	LD50
Amorphous Silica	1-5	112945-52-5	10 mg/m^3	>5000 mg/kg oral/rat
Zinc Oxide	60-70	1314-13-2	2 mg/m^3	Not Established
Triethylene Glycol	0.1-2	112-27-6	Not Established	15000 mg/kg oral/rat
Octamethylcyclo-Tetrasiloxane	0.1-2	556-67-2	10 ppm	2000 mg/kg oral/rat 36 mg/L inhal/ rat 4 hrs

IV FIRST AID MEASURES

Inhalation	**No emergency care is anticipated.**
Eye Contact	**Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, by the clock, holding the eyelid(s) open. Obtain medical attention if symptoms persist.**
Skin Contact	**Remove contaminated clothing. Wash gently and thoroughly with water and non-abrasive soap. If symptoms persist, obtain medical attention. Contaminated clothing should be laundered before re-use.**
Ingestion	**Seek medical attention immediately.**
First Aid	**Provide general supportive measures (comfort, warmth, rest). Consult a physician and/or the nearest Poison Control Center for all exposures except minor instances of inhalation or skin contact.**

V FIRE FIGHTING MEASURES

A. FIRE AND EXPLOSION DATA

Flash Point	**Not Determined**
Lower Explosive Limit %	**Not Applicable**
Upper Explosive Limit %	**Not Applicable**
Autoignition Temperature	**No Data**
Fire Extinguishing Agents	**Dry Chemical, CO_2, Water Spray, Chemical Foam**
Unusual Fire/ Explosion Hazard	**In extreme fire conditions, this material may present a floating fire hazard**
Hazardous Combustion Products	**Carbon Dioxide, Carbon Monoxide, Silicon Dioxide, Formaldehyde**

B. FIRE FIGHTING PROCEDURES

Wear a Self Contained Breathing Apparatus (SCBA) which provides eye protection and which NIOSH approved. Don't spray a solid stream of water or foam directly into a pool of hot, burning liquid as this may cause frothing, and may intensify the fire.

VI ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedure	**Restrict access to area of spill. Provide ventilation and protective clothing if needed. Contain spill. Recover material for recycling or disposal.**
Waste Disposal	**Review environmental regulations for disposal. Silicone wastes can often be incinerated in approved facilities. Solid waste may be sent to a designated landfill site.**

VII HANDLING AND STORAGE

Storage Conditions	**Normal precautions common to good manufacturing practice should be followed in storage.**
Handling Procedure	**No special measures indicated for this product.**

VIII EXPOSURE CONTROL AND PERSONAL PROTECTION

Contains no volatile ingredients that require exposure control.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	**Not required for normal use.**
Eye/Face Protection	**Safety glasses**
Skin Protection	**Protective gloves PVC coated.**
Ventilation Requirements	**General (mechanical) room ventilation is expected to be satisfactory.**

IX PHYSICAL AND CHEMICAL PROPERTIES

Physical State	**Thixotropic paste**
Odour	**Odourless**
Odour Threshold	**Not Applicable**
pH	**Not determined**
Boiling Point (^{o}C)	**Not Applicable**
Freezing Point (^{o}C)	**Not Applicable**
Vapor Pressure (mm Hg)	**Negligible @ 25^{o}C.**
Vapor Density (Air = 1)	**Not Applicable**
VOC Concentration	**Not Applicable**
Specific Gravity (Water = 1)	**2.30**
Solubility in Water	**Insoluble**
Solubility in Other Solvents	**Soluble in Most Organic Solvents**
Evaporation Rate	**Not Applicable**
Decomposition Temperature	**Not determined**

X STABILITY AND REACTIVITY

Product Stability	**Stable**
Hazardous Polymerization	**Will not occur**
Incompatible Materials	**Chlorinated Rubber, Magnesium, Linseed Oil**
Hazardous Decomposition Products	**Combustion will produce silicon dioxide, carbon dioxide and carbon monoxide. A component of this product can generate formaldehyde at approximately 150°C (300°F) and above in the atmosphere containing oxygen. Formaldehyde is a skin and respiratory sensitizer, eye and throat irritant, acute toxicant and potential carcinogen.**

XI TOXICOLOGICAL INFORMATION

Toxicological Data	**Lethal dose value (calculated based on zinc oxide) 725 mg/kg oral human.**

Evidence of reproductive effects of Octamethylcyclotetrasiloxane in laboratory animals at concentrations of 500 and 700 ppm

XII ECOLOGICAL INFORMATION

Zinc oxide is toxic to aquatic organisms. It takes longer time for zinc oxide to break down, which may cause adverse long term effects in the aquatic environment. Its degradation products are less toxic than itself.

XIII DISPOSAL CONSIDERATION

Not classified as Hazardous Waste.

Review environmental regulations for disposal. Silicone wastes can often be incinerated in approved facilities. Solid waste may be sent to a designated landfill site.

XIV TRANSPORT INFORMATION

TDG Information	**Not a regulated item.**

XV REGULATORY INFORMATION

Risk Phrases	**R22 Harmful if swallowed.**
Safety Phrases	**S41 In case of fire do not breathe fumes.**
WHMIS Classification	**1. CLASS D-Poisnous and Infectious Material Division 2-Other Toxic Effects Sub-Division B-Toxic**
RoHS Statement	**CSL 850 Heat Sink Compound does not contain Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium, Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) as listed in RoHS Directives.**
TSCA Status	**All ingredients of this product are listed on TSCA Inventory of Chemicals.**
State of California Safe Drinking Water And Toxic Enforcement Act 1986 (Proposition 65)	**None of the ingredients of this product is listed on Proposition 65 list issued on December 2006.**
Canadian DSL Status	**All ingredients of this product are on the Canadian DSL.**

XVI OTHER INFORMATION

Date Issued	**August 9, 2007**
Date Revised	**April 8, 2010**
Prepared By	**Farooq Ahmed, Research and Development Manager**
Emergency Contact	**Baz Mistry, Laboratory Manager or Farooq Ahmed, Research and Development Manager**

REFERENCES

1. **American Conference of Governmental Industrial Hygienists Inc., Documentation of the Threshold Limit Values (TLV) and Biological Exposures Indices, 5th Edition, 1986, Cincinnati, OH.**
2. **National Institute for Occupational Safety and Health, Registry of Toxic Effects of Chemical Substances.**
3. **Sigma-Aldrich Corp., USA, The Sigma-Aldrich Library of Chemical Safety Data, 1985.**
4. **Sittig, M., handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Edition, 1985, Park Ridge, NJ.**
5. **Canadian Center for Occupational Health and Safety, CHEMINFO, Record #15E, #26E.**
6. **Material Safety Data Sheets from Cabot Corporation, Wacker-Chemie GMBH, General Filtration, Dow Corning, Union Carbide, Hoechst Canada.**
7. **Canada's National Occupational Health & Safety Resources at www.ccohs.ca/oshanswers/legisl/whmis**
8. **Information from Health Canada Website at www.hc-sc.gc.ca/ahc-asc/intactiv/ghs-sgh/index_e.html**
9. **Information from United Nations Website at www.unece.org/trans/danger/publi/ghs/ghs_rev01/01files_e.html**
10. **Information about RoHS (Restriction of Use of Certain Hazardous Substances in Electrical and Electronic Equipments) was obtained from Website at www.rohs.gov.uk**
11. **Information about State of California Safe Drinking Water and Toxic Enforcement Act 1986 (Proposition 65) was obtained from Website at www.oehha.ca.gov/prop65.html**

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