



# MATERIAL SAFETY DATA

## CSL 559 Flame retardant Silicone Sealant/Adhesive

Reviewed March 30, 2010

MSDS NO. 260

### I PRODUCT AND COMPANY IDENTIFICATION

<b>PRODUCT NAME</b>	CSL 559 Flame Retardant Silicone Sealant/Adhesive
<b>CHEMICAL NAME</b>	Not Applicable
<b>CHEMICAL FORMULA</b>	Silicone Sealant
<b>MOLECULAR WEIGHT</b>	Polymer
<b>MATERIAL USES</b>	Sealant designed for electronics, appliances, transportation and other industrial uses where resistance to burning is required.
<b>MANUFACTURER</b>	CSL Silicones Inc. 144 Woodlawn Road West Guelph, ON N1H 1B5 Canada
<b>TELEPHONE</b>	1-519-836-9044
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### II HAZARDS IDENTIFICATION

#### A. HAZARDOUS INGREDIENTS OF MATERIAL

Methyl Ethyl Ketoxime (MEKO) is a curing by-product that is released when the sealant comes in contact with water or humid air. It is recommended to provide adequate ventilation to keep concentration below 3 ppm. TWA: 3 ppm, STEL: 10 ppm, Work place Environmental Exposure Level AIHA: 10 ppm.

#### B. EFFECTS OF CHRONIC EXPOSURE

<b>Health Effects</b>	Pulmonary Edema, Dermatitis
<b>Toxicological Data</b>	LD50 not established.
<b>Carcinogenicity Data</b>	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.
<b>Reproductive Data</b>	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
<b>Mutagenicity Data</b>	No information available and no adverse mutagenic effects are anticipated
<b>Teratogenicity Data</b>	No information available and no adverse teratogenic effects are anticipated
<b>Synergistic Products</b>	None Known
<b>Delayed Effects</b>	Curing by-product Methyl Ethyl Ketoxime (MEKO). Male rats and mice exposed to MEKO throughout their lifetime developed liver tumors. Many commonly used chemicals cause liver tumors in rats and mice. The relevance to humans is uncertain.

#### C. EFFECTS OF ACUTE EXPOSURE

<b>Inhalation</b>	Not normally an inhalation hazard. At high vapor concentration, curing by-product has a narcotic action with reversible effects.
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Eyes	Moderate irritation. Can cause burns.
Skin	Mild irritant; may cause transient reddening of the skin.
Ingestion	Very low oral toxicity. May cause irritation and obstruction to gastro-intestinal tract.

**D. HAZARD SYMBOLS**

Harmful if swallowed

**III COMPOSITION/INFORMATION ON INGREDIENTS**

MATERIAL	%	CAS NUMBER	ACGIH TLV	LD50
Amorphous Silica	5-10	112945-52-5	10 mg/m <sup>3</sup>	>5000 mg/kg oral/rat
Oximino Silane	1-5	22984-54-9	Not Established	2 -3 mL/kg oral/rat
Amino Alkyl Silane	1-5	919-30-2	Not Established	Not Established
Titanium Dioxide	5-20	13463-67-7	10 mg/m <sup>3</sup>	24000 mg/kg oral/rat
Crystalline Quartz	20-50	14808-60-7	0.025 mg/m <sup>3</sup> (dust)	Not Available
2,4,6-Triamino-1,3,5-triazine	5-10	108-78-1	Not Established	3161 mg/kg oral/rat 3269 mg/kg oral mouse
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 anticipated. Treat symptomatically. If symptoms persist, consult physician.
Eye Contact	Do not attempt to physically remove solids or gums from eye. 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 immediately.
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	Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. DO NOT INDUCE VOMITING. Have victim drink 8 to 10 oz. (240 to 300ml) of water or milk to dilute material in stomach. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Repeat the administration of water/milk. Obtain 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. Solid or plastic material in the eye should be removed only by a physician.

**V FIRE FIGHTING MEASURES****A. FIRE AND EXPLOSION DATA**

Flash Point of Curing	
By-Product and Method	Not Established
Lower Explosive Limit %	Not Applicable
Upper Explosive Limit %	Not Applicable
Autoignition Temperature	No Data
Fire Extinguishing Agents	Dry Chemical, CO <sub>2</sub> , Water Spray
Unusual Fire/ Explosion Hazard	None

**Hazardous Combustion Products****Carbon Dioxide, Carbon Monoxide, Silicon Dioxide,  
Nitrogen Oxides, Formaldehyde****B. FIRE FIGHTING PROCEDURES****Wear a Self Contained Breathing Apparatus (SCBA) which provides eye protection and is NIOSH approved. Sealant will burn if strongly heated. Water can be used to cool material below flash point.****VI ACCIDENTAL RELEASE MEASURES**

**Spill and Leak Procedure**                      **Restrict access to area of spill. Provide ventilation and protective clothing if needed. Scrape up sealant with cardboard or rag and place in a container.**

**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**                            **Store in cool dry conditions. Keep container tightly sealed when not in use.**

**Handling Procedure**                         **No specific measures required. Do not inhale vapor or ingest sealant. Cured CSL product does not require special precautions.**

**VIII EXPOSURE CONTROL AND PERSONAL PROTECTION****Methyl ethyl ketoxime (MEKO) is released as a curing by-product when in contact with humid air.****EXPOSURE LIMIT OF CURING BY-PRODUCT**

<b>Component</b>	<b>OSHA PEL</b>	<b>ACGIH TLV</b>	<b>Other Limits</b>
<b>MEKO</b>	<b>None</b>	<b>None</b>	<b>10 ppm (STEL) 10 ppm (TWA)</b>

**PERSONAL PROTECTIVE EQUIPMENT**

**Respiratory Protection**                      **Not required unless normal ventilation is inadequate.**

**Eye/Face Protection**                        **Chemical splash goggles**

**Skin Protection**                                **Gloves, coveralls, apron may be useful to prevent contamination of skin or clothing.**

**Resistance of Materials for Protective Clothing**                      **No specific data. Most rubbers and plastics are adequate.**

**Ventilation Requirements**                      **Local exhausts to provide sufficient removal of vapours.**

**IX PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	<b>Thixotropic paste</b>
<b>Odour</b>	<b>Almost odourless</b>
<b>Odour Threshold</b>	<b>Not Applicable</b>
<b>pH</b>	<b>Not determined</b>
<b>Boiling Point (°C)</b>	<b>Not Applicable</b>
<b>Freezing Point (°C)</b>	<b>Not Applicable</b>
<b>Vapor Pressure (mm Hg)</b>	<b>Negligible @ 25°C.</b>
<b>Vapor Density (Air = 1)</b>	<b>Not Applicable</b>
<b>VOC Concentration</b>	<b>52.05 g/L (0.43 lb/gallon)</b>
<b>Specific Gravity (Water = 1)</b>	<b>1.50</b>
<b>Solubility in Water</b>	<b>Insoluble</b>

<b>Solubility in Other Solvents</b>	<b>Soluble in Most Organic Solvents</b>
<b>Evaporation Rate</b>	<b>Not Applicable</b>
<b>Decomposition Temperature</b>	<b>Not determined</b>

## **X STABILITY AND REACTIVITY**

<b>Product Stability</b>	<b>Stable</b>
<b>Hazardous Polymerization</b>	<b>Will not occur</b>
<b>Incompatible Materials</b>	<b>STRONG OXIDIZERS. CONCENTRATED ACIDS OR BASES cause degradation of polymer. Boiling water may soften and weaken material.</b>
<b>Hazardous Decomposition Products</b>	<b>Combustion will produce silicon dioxide, carbon dioxide, carbon monoxide and nitrogen oxides. 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.</b>

## **XI TOXICOLOGICAL INFORMATION**

<b>Toxicological Data</b>	<b>LD50 Not established.</b>
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Evidence of reproductive effects of Octamethylcyclotetrasiloxane in laboratory animals at concentrations of 500 and 700 ppm

## **XII ECOLOGICAL INFORMATION**

Sealant will release methyl ethyl ketoxime (MEKO) when in contact with water. MEKO has been determined to be biodegradable and has a static 96 hours LC<sub>50</sub> of 48 mg/L (bluegill) and 48 hours EC<sub>50</sub> of 750 mg/L (daphnia).

## **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**

<b>TDG Information</b>	<b>Not a regulated item.</b>
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## **XV REGULATORY INFORMATION**

<b>Risk Phrases</b>	<b>R22 Harmful if swallowed. R36 Irritating to eyes. R43 May cause sensitization by skin contact.</b>
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<b>Safety Phrases</b>	<b>S23 Do not breath vapours S24/25 Avoid contact with skin and eyes S51 Use in well-ventilated areas</b>
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<b>WHMIS Classification</b>	<b>1. CLASS D-Poisonous and Infectious Material Division 2- Other Toxic Effects Subdivision A- Very toxic material 2. CLASS D-Poisonous and Infectious Material Division 2-Other Toxic Effects Subdivision B-Toxic material</b>
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<b>RoHS Statement</b>	<b>CSL 559 Flame Retardant Silicone Sealant/Adhesive does not contain Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium, Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) as listed in RoHS Directives.</b>
<b>TSCA Status</b>	<b>All ingredients of this product are listed on TSCA Inventory of Chemicals.</b>
<b>State of California Safe Drinking Water And Toxic Enforcement Act 1986 (Proposition 65)</b>	<b>None of the ingredients of this product is listed on Proposition 65 list issued on December 2006.</b>
<b>Canadian DSL Status</b>	<b>All ingredients of this product are on the Canadian DSL.</b>

## **XVI OTHER INFORMATION**

<b>Date Issued</b>	<b>August 9, 2007</b>
<b>Date Revised</b>	<b>March 30, 2010</b>
<b>Prepared By</b>	<b>Farooq Ahmed, Research and Development Manager</b>
<b>Emergency Contact</b>	<b>Baz Mistry, Laboratory Manager or Farooq Ahmed, Research and Development Manager</b>

## **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, Honeywell Chemicals.
7. Canada's National Occupational Health & Safety Resources at [www.ccohs.ca/oshanswers/legisl/whmis](http://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](http://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](http://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](http://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](http://www.oehha.ca.gov/prop65.html)

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