

## 1. Identification

Product Identifier: CSL535 Oil Resistant Silicone Sealant/Adhesive  
 Use: Silicone sealant  
 Manufacturer: CSL Silicones Inc.  
 144 Woodlawn Road West, Guelph, ON, N1H 1B5  
 Canada  
 Manufacturer Phone: North America: 1.800.265.2753 Worldwide: +1 519.836.9044  
 Emergency Phone: +1 519.836.9044 Monday – Friday, 8:00 A.M. – 5:00 P.M. Eastern Time Zone, UTC-05:00  
 Emergency Contact: Baz Mistry, Laboratory Manager; Farooq Ahmed, R&D Manager

## 2. Hazards Identification

GHS Hazard Classification: Acute Toxicity – Category 4  
 Reproductive Toxicity – Category 2  
 Skin Irritation – Category 3  
 Skin Sensitizer – Category 1  
 Specific Target Organ Toxicity (STOT) Repeated Exposure – Category 2

GHS Hazard Symbols:



GHS Signal Word: Warning Warning  
 GHS Hazard Statements: H302 – Harmful if swallowed.  
 H316 – Causes mild skin irritation.  
 H317 – May cause an allergic skin reaction.  
 H361 – Suspected of damaging fertility.  
 H373 – May cause damage to organs through prolonged or repeated exposure.  
 Affected organs: cardiovascular/hematological (hematopoiesis).

GHS Precautionary Statements:

Prevention: P260 – Do not breathe fume/vapour.  
 P262 – Do not get in eyes, on skin, or on clothing.  
 P273 – Avoid release to the environment.  
 P280 – Wear protective gloves/protective clothing/eye protection/face protection.  
 Response: P302+P352 – IF ON SKIN: Wash with plenty of water/shower.  
 P305+P351+P339 – IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P310+314 – Immediately call a poison center/doctor/medical center if you feel unwell.  
 Storage: P403+P233+P235 – Store in a well ventilated place. Keep container tightly closed. Keep cool.  
 Disposal: P501 – Dispose of contents/containers to waste in accordance with local/regional/national/international regulations.



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Other Hazards which do not result in GHS classification: Not applicable.

### 3. Composition / Information on Ingredients

Chemical Name	Common or Other Name	CAS Number	Percent by Weight
Silicon dioxide	Silica, amorphous	7631-86-9	5 - 10
N-[bis((butan-2-ylideneamino)oxy)methylsilyl]oxybutan-2-imine	Butan-2-one-O,O'- (methylsilyldiylidene)trioxime; oximono silane	22984-54-9	1 - 5
3-triethoxysilylpropan-1-amine	3-triethoxysilylpropan-1- amine; amino alkyl silane	919-30-2	1 - 5
Octamethylcyclotetrasiloxane*	2,2,4,4,6,6,8,8-octamethyl- 1,3,5,7,2,4,6,8- tetroxatetrasiloxane	556-67-2	0.1 - 0.8
Other Ingredients			Conc

\* Octamethylcyclotetrasiloxane (D4) is classified under GHS as Reproductive Toxicity - Category 2 (H361 - Suspected of damaging fertility) based on reproductive studies in animals. See Section 11 for further details.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentration applicable, are classification as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

### 4. First Aid Information

IF POISONING IS SUSPECTED, immediately contact the poison control center, doctor or nearest hospital. Have the product container, label or Safety Data Sheet with you when calling CSL Silicones Inc., a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Inhalation:	The affected person should be moved to fresh air and made comfortable. Obtain medical attention as a precaution.
Eye Contact:	Do not attempt to remove solids or gums from the eye. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes, holding the eyelids open. After 5 minutes, remove contact lenses if present and possible, and continue rinsing. 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, is unconscious or convulsing. DO NOT INDUCE VOMITING. Have victim rinse out mouth and drink 8 to 10 oz. (240 to 300 ml) of water to dilute the material in stomach. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Obtain medical attention immediately.

#### Most Important Symptoms/Effects:

At high vapour concentration, curing-by-product has a narcotic action with reversible effects.

Eye contact may cause moderate irritation. Can cause burns.

Skin contact may cause mild irritation, transient reddening of the skin.

Ingestion may cause irritation and obstruction to the gastro-intestinal tract.



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#### Indication of Immediate Medical Attention and Special Treatment Needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

## 5. Fire Fighting Measures

#### Suitable Extinguishing Media:

Chemical foam, dry chemical, CO<sub>2</sub>, water spray.

#### Unsuitable Extinguishing Media:

Do not use water jet as an extinguisher as this may spread the fire.

#### Specific Hazards:

Hazardous combustion products: carbon dioxide, carbon monoxide, formaldehyde, silicon dioxide.

#### Special Protective Equipment and Precautions for Firefighters:

Sealant will burn if heated strongly. Water can be used to cool material below flash point. Sealant may emit noxious or toxic fumes. Self-Contained Breathing Apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. Full protective clothing should be worn at all times.

## 6. Accidental Release Measures

#### Personal Precautions, Protective Equipment and Emergency Procedures:

Make sure all personnel involved in the clean-up follow good industrial hygiene practices. A small spill can be handled routinely. Use adequate ventilation and equipment, and wear protective clothing as detailed in Section 8 Exposure Controls / Personal Protection and/or the product label.

#### Methods and Materials for Containment and Cleaning Up:

Restrict access to area of spill. Provide ventilation and protective clothing as required for the situation. Scrape-up sealant with cardboard or a rag and place in a disposal container.

#### Environmental Precautions:

Review local, regional and/or national regulations for disposal. Silicone wastes can often be incinerated in approved facilities. Solid waste can often be sent to designated landfill sites.

## 7. Handling and Storage

#### Precautions for Safe Handling:

KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours. Wear full protective clothing and equipment as detailed in Section 8 Exposure Controls / Personal Protection. After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry.

#### Conditions for Safe Storage, Including any Incompatibilities:

Store in cool dry conditions. Keep container tightly sealed when not in use. Protect product and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people. Clean up spilled material immediately.



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### 8. Exposure Controls / Personal Protection

Control Parameters:

Chemical Name	OSHA PEL	ACGIH TLV	Other	NTP/IARC/ OSHA Carcinogen	Canada TLV
Silicon dioxide*	10 mg/m <sup>3</sup> inhalable; 3 mg/m <sup>3</sup> respirable.	Not established.	Not established.	Not established.	Ontario 10 mg/m <sup>3</sup> TLV; Quebec 6 mg/m <sup>3</sup> TLV
N-[bis[(butan-2-ylideneamino) oxy]methylsilyloxybutan-2- imine	Not established.	Not established.	Not established.	Not established.	Not established.
3-triethoxysilylpropan-1-amine	Not established.	Not established.	Not established.	Not established.	Not established.
Octamethylcyclotetrasiloxane	Not established.	10 ppm	Not established.	Not established.	Not established.
Methyl Ethyl Ketoxime (MEKO)**	Not established.	Not established.	3 ppm TWA; 10 ppm STEL; 10 ppm workplace environmental exposure level (AIHA)	Not established.	Not established.

REL = recommended exposure limit; STEL = short-term exposure limit; TLV = threshold limit value; TWA = time weighted average

\* Component(s) are bound in the formulation and are not an exposure concern in the mixture or cured product.

\*\* Methyl Ethyl Ketoxime (MEKO) is a curing-by-product that is released when the coating comes in contact with humid air. It is recommended to keep workplace exposure levels below 3 ppm.

#### Appropriate Engineering Controls:

If necessary, ensure work areas have adequate ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Provide separate washing/shower and eating facilities.

#### Individual Protection Measures:

**General:** Avoid breathing dusts, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling, and before eating, drinking, applying cosmetics or handling tobacco.

**Eye/Face Protection:** Safety glasses / chemical splash goggles.

**Skin Protection:** Impervious gloves, coveralls and/or aprons may be useful to prevent contamination of skin and clothing. Choose gloves to protect hands against chemicals depending on the concentration specific to the place of work. Breakthrough time is not determined for the product. Change gloves often. We recommend clarifying the resistance of chemicals to protective gloves with the glove manufacturer. Wash hands before breaks and at the end of the workday.

**Respiratory Protection:** General and local exhaust ventilation is recommended to maintain vapour exposures below the recommended limits. Where concentrations are unknown or are above the recommended limits, a NIOSH/MSHA approved respirator with an organic vapour cartridge should be used. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplier respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.



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### 9. Physical and Chemical Properties

Appearance: Thixotropic paste.

Odour: Almost odourless.

Odour Threshold: Not available.

pH: Not available.

Melting Point: Not applicable.

Freezing Point: Not available.

Initial Boiling Point: Not available.

Boiling Point Range: Not available.

Flash Point: 85 °C (185 °F) P.M.C.C., ASTM D-93

Evaporation Rate: Not applicable.

Flammability: Not applicable.

Upper/Lower Flammability Limits: Not applicable.

Vapour Pressure: Negligible @ 25 °C (77 °F)

Vapour Density: Not applicable.

Relative Density: 1.03

Solubility(ies): Insoluble – water. Soluble in most organic solvents

Partition Coefficient (n-octanol/water): Not available.

Auto-Ignition Temperature: Not applicable.

Decomposition Temperature: Not available.

Viscosity: Not available.

VOC Content: 47.69 g/L (0.398 lb/gallon)

### 10. Stability and Reactivity

Reactivity:

Not reactive under normal use and storage conditions.

Stability:

Stable under normal use and storage conditions.

Possibility of Hazardous Reactions:

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Conditions to Avoid:

Humid or moist air conditions (acetic acid vapour release during curing). Temperatures above the flash point.

Incompatible Materials:

Strong oxidizers, concentrated acids or bases cause degradation of polymer. Boiling water may soften and weaken material.

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.

### 11. Toxicological Information

Relevant routes of exposure:

	Acute Effects	Chronic Effects
Inhalation	At high vapour concentration, curing by-product has a narcotic action with reversible effects.	Effects unknown.
Ingestion	May cause irritation and obstruction to gastro-intestinal tract.	Effects unknown.
Skin Contact	Mild irritant. May cause transient reddening of the skin.	Effects unknown.
Eye Contact	Moderate irritation. Can cause burns.	Effects unknown.
Other	Component is suspected of damaging fertility.	Component is suspected of damaging fertility.

**Octamethylcyclotetrasiloxane (D4):**

Range finding reproductive studies were conducted (whole body inhalation, 70 days prior to mating, gestation and lactation), with D4. Rats were exposed to 70 and 700 ppm. In the 700 ppm group, there was a statistically significant reduction in mean litter size and in implantation sites. No D4 related clinical signs were observed in the pups and no exposure related pathological findings were found. A two-year, combined chronic/carcinogenicity study, during which rats were exposed to D4 by inhalation, data showed a statistically significant increase in a benign uterine tumour in female rats exposed at the highest level – a level much higher than the low levels that consumers or workers may encounter. An expert panel of independent scientists who reviewed the results of this research concur that the finding seen in the two-year study occurred through a biological pathway that is specific to the rat and is not relevant to humans. Therefore, this observed effect does not indicate a potential health hazard to humans. In developmental toxicity studies, rats and rabbits were exposed to D4 at concentrations up to 700 ppm and 500 ppm respectively. No teratogenic effects (birth defects) were observed in either study.

**Acute Toxicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
LD50, oral, rat, calculated 3,810 – 4,670 mg/kg.	LD50, rat, oral >5,110 mg/kg; LD50, rabbit, eye/skin >2,000 mg/kg; LC50, rat, inhalation > 4 mg/L.	LD50, oral, rat, >5,000 mg/kg.	No data available.	LD50 oral, rat 4,800 mg/kg (OECD Guideline 401); LC50 inhalation, rat, 4hr. > 12.1 mg/kg; LC50 inhalation, rat, 4hr., 36 mg/L (OECD Guideline 403)

**Skin Irritation:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	Not irritating to skin (rabbit).	Sensitization possible. Irritates the skin.	Irritant for skin and mucous membranes.	Non-irritating to the skin, rabbit (OECD Guideline 404)

**Eye Irritation:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	Not irritating to eyes (rabbit).	Irritates the eye.	Irritant effect.	Non-irritating to the eyes, rabbit (OECD Guideline 405).

**Mutagenicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	There is no evidence that SAS induced mutations/ genotoxic either in vitro or in vivo in standard methods.	No data available.	No data available.	Negative, in vitro, Salmonella typhimurium (OECD Guideline 471); Negative, in vitro, Mouse Lymphoma Assay (OECD guideline 476); Negative, in vivo, Micronucleus test, (OECD Guideline 453)

**Carcinogenicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	IARC Group 3	No data available.	No data available.	Inhalation, rat-female, 24 months, 150 mg/kg, NOAEC (OECD Guideline 453); Inhalation, rat-male, 24 months, >700 mg/kg, NOAEC (OECD Guideline 453).

NOTE: Silicon dioxide is fully bound in the product formulation and is not an inhalation hazard in either the mixture or cured product.

The ingredients of this product are not listed as carcinogens by the National Toxicology Program, and have not been evaluated by the International Agency for Research on Cancer (IARC) or the American Conference of Government Industrial Hygienists (ACGIH) (if not detailed above).

**Reproductive Toxicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	The study on rats and mice gave no evidence of adverse effects on reproduction and development.	No data available.	No data available.	Rat, inhalation, 300 mg/kg, NOAEL parents (OECD Guideline 416); Rat, inhalation, 300 mg/kg, NOAEL F1 (OECD Guideline 416).

**Teratogenicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	The study on rats and mice gave no evidence of adverse effects on reproduction and development.	No data available.	No data available.	Rabbit, inhalation, 18 days, 500 mg/kg, NOAEL (OECD Guideline 414); Rabbit, inhalation, 18 days, 300 mg/kg, NOAEL maternity (OECD Guideline 414).

**Specific Target Organ Toxicity (STOT) – Single Exposure:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	No clinical symptoms (rat, inhalation).	No data available.	No data available.	No data available.

**Specific Target Organ Toxicity (STOT) - Repeated Exposure:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	The inhalation of respirable particles of SAS produce a time and dose related inflammation response of the lung tissue in animal studies. All these effects were reversible following discontinuation of exposure.	May cause damage to organs through prolonged or repeated exposure. Affected organs: cardiovascular/hematological (hematopoiesis).	No data available.	No data available.

NOTE: Silicon dioxide is fully bound in the product formulation and is not an inhalation hazard in either the mixture or cured product.

**Aspiration Hazard:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	No data available.	No data available.	No data available.	No data available.

**Chronic Toxicity:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	No data available.	No data available.	No data available.	Inhalation, rat, 150 mg/kg, 24 months, NOAEC (OECD Guideline 453); Dermal, rabbit, 3 weeks, NOAEL (OECD Guideline 410)

NOTE: Silicon dioxide is fully bound in the product formulation and is not an inhalation hazard in either the mixture or cured product.

NOTE: Curing by-product, methylethylketoxime (MEKO); male rats and mice exposed to MEKO throughout their lifetime developed liver tumours. Many commonly used chemicals cause liver tumours in rats and mice. The relevance to humans is unknown.

**12. Ecological Information**

**Ecotoxicity - Acute:**

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	EC50, 48h, Daphnia magna >10,000 mg/L..	No data available.	No data available.	LC50, 96h, Oncorhynchus mykiss, ≥0.022 mg/L; EC50, 48h, Daphnia magna, >0.015 mg/L.





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### Ecotoxicity – Chronic:

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	No data available.	No data available.	No data available.	NOEC, 93d, <i>Oncorhynchus mykiss</i> , $\geq 0.0044$ mg/L; NOEC, 21d, <i>Daphnia magna</i> , 0.0079 mg/L; EC50, 96h, <i>Selenastrum capricornatum</i> , $> 0.022$ mg/L.

### Persistence and Degradability:

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	Log Kow 0.53 (estimated)	No data available.	No data available.	Not biodegradable.

### Bioaccumulative Potential:

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	BCF 3.162 (estimated).	No data available.	No data available.	Bioaccumulating.

### Mobility in Soil:

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	Koc 2.881 (estimated).	No data available.	No data available.	No data available.

### Other Adverse Effects:

Product	Silicon Dioxide	N-[Bis[(1-butan-2-ylideneamino)oxy]ethenylsilyl]oxybutan-2-imine	3-triethoxysilylpropan-1-amine	Octamethylcyclotetrasiloxane
No data available.	No data available.	No data available.	No data available.	No data available.

## 13. Disposal Considerations

### Disposal Methods:

Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.



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## 14. Transport Information

Transport Information

Land Transport  
(TDG/ USDOT)

Sea Transport  
(AND/MDG)

Air Transport  
(IATA-DGR)

This material is not subject to transport regulations.

UN Number

UN Proper Shipping Name

Transport Hazard Class

Packing Group

Environmental Hazards

Special Precautions for User:

Not applicable.

Transport in Bulk According to Annex II of Marpol 73/78 and the IBC Code:

Not applicable.

## 15. Regulatory Information

### Canadian Federal Regulations

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR), and the MSDS contains all the information required by the HPR.

DSL Inventory:

All chemical substances in this material are included in or exempted from the DSL.

### US Federal Regulations

TSCA Inventory:

All chemical substances in this material are included in or exempted from the TSCA.

CERCLA Reportable Quantity:

None present on none present in regulated quantities.

SARA 304 Extremely Hazardous Substances Reportable Quantity:

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

SARA 311/312 Hazard Categories:

Not applicable.

SARA 302 Extremely Hazardous Substance:

No chemicals in this material are subject to reporting requirements of SARA Title III, Section 302

SARA 313 Emergency Release Notification:

This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.



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### US State Regulations

- U.S. California Proposition 65  
No ingredient regulated by CA Prop 65 present.
- U.S. New Jersey Worker and Community Right-to-Know Act  
No ingredient regulated by NJ Right-to-Know Law present.
- U.S. Massachusetts Right-to-Know Act- Substance List  
Silicon dioxide, CAS 7631-86-9, 5 - 10%
- U.S. Pennsylvania Right-to-Know Act - Hazardous Substances  
Silicon dioxide, CAS 7631-86-9, 5 - 10%
- U.S. Rhode Island Right-Know Act  
No ingredient regulated by RI Right-to-Know Law present.

### Other Regulations

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

### The ingredients of this product are reported in the following inventories:

AICS (Australia)	On or in compliance with the inventory.
DSL (Canada)	On or in compliance with the inventory.
ENCS/ISHL (Japan)	On or in compliance with the inventory.
IECSC (China)	On or in compliance with the inventory.
KECI (Korea)	On or in compliance with the inventory.
NZIoC (New Zealand)	On or in compliance with the inventory.
PICCS (Phillipines)	On or in compliance with the inventory.
REACH (European Union)	On or in compliance with the Inventory.
TSCA (USA)	On or in compliance with the inventory.

## 16. Other Information

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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 provided is designed only as guidance for safe handling, use, processing, storage, transportation, and release and is not considered a warranty or product specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

It is the responsibility of persons in receipt of this product Safety Data Sheet (SDS) to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product.

All information and instructions provided in this Safety Data Sheet are based on the current state of scientific and technical knowledge at the date indicated on the present SDS. CSL Silicones shall not be held responsible for any defect in the product covered by this SDS, should the existence of such defect not be detectable considering the current state of scientific and technical knowledge.

This Safety Data Sheet has been prepared in compliance with applicable Canadian and United States law. If you purchase this material outside Canada or the United States, where compliance laws may differ, you should receive from your local CSL Silicones supplier a SDS applicable to the country in which the product is sold or intended to be used. Please note that the appearance and contents of the SDS may vary, even for the same product, between different countries, reflecting the compliance requirements.

물질안전보건자료  
CSL 535 내유실리콘실란트/접착제

2015.08.17 개정

MSDS NO. 230

I 제품 및 회사정보

제품명	CSL 535 내유실리콘실란트/접착제
화학명	적용불가
화학구성	실리콘밀봉제
분자량	중합체
소재용도	광범위공업용실란트
제조회사	CSL Silicones Inc. 144 Woodlawn Road West Guelph, ON N1H 1B5 Canada
전화	1-519-836-9044
FAX	1-519-836-9069
긴급전화	1-519-836-9044

II 유해성 정보

A. 유해성분 물질

메칠 에칠 케톤(MEK)은 실란트가 물이나 습한 공기와 접촉시 방출되는 경화부산물이다. 3ppm 이하의 농도를 유지하도록 적당한 환기가 필요하다. TWA: 3ppm, STEL: 10ppm, 작업장의 환경친화적 노출 수준 AIHA: 10ppm.

B. 만성노출 효과

건강 효과	폐부종, 피부염
독소성 자료	LD50혼합물(산출)섭취쥐 3810-4670mg/kg
발암물질자료	본 제품의 성분은 국가 유독물질 프로그램에 등재되지 않았으며, 국제암연구센터 또는 미국정부공업위생학자로부터 감정되지 않았다.
재생자료	옥타메칠사이클로테트라실록산(500-700ppm 농도중) 이 연구소 동물실험에서 재생효과가 보였다. 본 제품에 해로운 재생효과가 있다는 정보는 입수할수 없다.
변성유전자료	어떠한 정보나 변성유전성 유해효과도 예상되지 않았다.
최기성자료	어떠한 정보나 최기성 유해효과도 예상되지 않았다.
상승제품	미상
지연효과	경화부산물 메칠에칠케톤(MEK). 수컷쥐 및 생쥐를 수명 기한까지 MEK에 노출시킨결과 간종양이 발생하였다. 평상시 사용하는 많은 화학물질이 쥐 와 생쥐의 간종양 원인이 되었다. 인간과의 관련성은 확실하지 않다.

### C. 격렬한노출 효과

흡입	통상적으로 흡입위험은 없다. 높은중기 농도에서, 경화시 부산물이 가역성 효과로 최면성 동작을 갖게 한다.
안구	가벼운 자극성. 화끈거리게 할수 있다.
피부	가벼운 자극성, 일시적 피부홍반을 일으킬수 있다.
섭취	매우 낮은 구강독성. 위-장 관에 자극 및 장애를 일으킬수 있다.

### D. 위험표지



### III 성분의구성/정보

물질	%	CAS 번호	ACGIH TLV	LD50
아모로포스실리카	5-10	7631-86-9	5mg/m'	> 5000mg/kg 경구/쥐
옥시미노실란	1-5	22984-54-9	미설정	2-3ml/kg 경구/쥐
아미노알킬실란	1-5	919-30-2	미설정	미설정
옥타메칠시크로	0.1-2	556-67-2	10ppm	2,000mg/kg 경구/쥐
테트라실록산				36mg/L 흡입/쥐 4시간

### IV 응급조치

흡입	응급조치 우려는 없다. 증상에 따라 치료한다. 만일 증상이 지속하면 의사와 상의한다.
안구접촉	안구로부터 단단한물체 또는 눈뿔을 물리적 제거를 하지 마시오. 즉시 오염된 안구를 미지근한물로 눈꺼풀을 벌리고 20분간 씻는다. 의료진찰을 받는다.
피부접촉	오염된 피복을 벗는다. 물과 비연마성 비누로 부드럽게 충분히 씻는다. 만일 중후가 지속되면, 의료진찰을 받는다. 오염된 피복은 다시 착용전에 세탁한다.
섭취	만일 환자가 급격하게 의식을 잃거나, 또는 무의식이거나, 또는 발작을 일으키면 입으로 아무것도 먹이지 않는다. 구토를 유도 하지 마시오. 환자가 8 내지 10oz.(240-300ml) 물 또는 우유를 마시게하여 위속의 물질을 희석시킨다. 만일 구토가 저절로 나오면, 흡인위험이 감소하도록 환자를 앞으로 엎드리게 한다. 물/우유 조치를 반복한다. 즉시 의료진찰을 받는다.
응급조치	일반적 간호를 제공한다(상쾌, 따뜻함, 휴식). 의사와 상의/또는 경미한 섭취 혹은 피부접촉 이외의 모든노출에 대하여 가까운 독극물관리센터에게 상의한다. 안구에 들어간 단단한물체나 프라스틱은 반드시 의사가 제거하도록 한다.

## V 소방조치

### A. 화재 및 폭발 자료

경화시 인화점	
부산물 및 방법	85℃, P.M.C.C. ASTM D-93
하단폭발한계 %	해당없음
상단폭발한계 %	해당없음
자동발화온도	자료없음
화재진압약제	분말화학제, CO2, 물분무
돌발화재/폭발위험	없음
연소위험제품	이산화탄소, 일산화탄소, 실리콘이산화물, 산화질소, 포르말데히드

### B. 화재진압절차

안구보호와 NIOSH 인증 호흡장치내장(SCBA)기구를 착용한다. 만일 강력하게 과열하면 실란트는 불에 탄다. 물을 이용하여 물질을 인화점 아래로 차게한다.

## VI 우발사고 해결조치

유출 및 누출시절차	유출지역 접근을 제한한다. 환기를 하고 만일 필요하면 보호복을 착용한다. 판지 또는 걸레로 실란트를 주어담아 용기에 담는다.
폐기물처리	폐기에 관한 환경규정을 조사한다. 실리콘폐기물은 흔히 허가받은 시설에서 소각할수있다. 굳어진 폐기물은 지정된 매립장으로 보낸다.

## VII 취급 및 보관

보관조건	서늘하고 건조한 조건에서 보관한다. 사용하지 않을 때는 용기를 꼭 막아둔다.
취급절차	특별한 조치는 필요하지 않다. 증기를 흡입하거나 실란트를 섭취하지 않는다. 경화후의 CSL 실리콘은 특별한 주의가 필요없다.

## VIII 노출통제 및 개인보호

메칠에칠케톡심(MEKO)는 습한공기 와 접촉할 때 경화부산물로 방출된다.

### 경화부산물의 노출제한

성분구성	OSHA PEL	ACGH TLV	기타제한
MEKO	없음	없음	10ppm(STEL) 10ppm(TWA)

## 개인보호장비

호흡기보호	정규 환기가 부적절하지 않는한 불필요하다.
안구/안면보호	화학물질발산 보호안경
피부보호	장갑, 작업복, 앞치마가 피부 또는 의복을 오염으로부터 보호할수 있다.
보호의복에 대한 저항물질	해당 자료 없음. 거의 모든 고무 및 프라스틱은 적절하다.
환기필요성	증기를 국소배출기로 충분히 제거한다.

## IX 물리적 및 화학적 특성

물리적상태	요변성반죽
냄새	거의무취
냄새발단	해당없음
폐하(pH)	해당없음
비등점(℃)	해당없음
증기압력(mm HG)	미미한수준 @25℃
결빙점(℃)	해당없음
증기밀도(공기=1)	해당없음
VOC 농도	47.69g/L(0.398 lb.gallon)
비중(물=1)	1.03
수중용해성	불용성
기타용제중용해성	거의 모든 유기성용제중 가용성
증발비율	해당없음
부패온도	해당무

## X 안전성 및 반응성

제품안정성	안정적
유해성중합작용	발생하지 않음
배합불가물질	강력산화제, 고농축산 또는 기초성분은 중합체의 분해를 유발한다. 끓는물은 물질을 유연하게하고 약화시킨다.
유해변질제품	연소는 실리콘이산화물, 이산화탄소, 일산화탄소 및 이산화질소를 발생시킨다. 이 제품의 하나의 구성성분은 약 150℃(300°F) 및 그 이상의 산소가 포함된 대기중에서 프롬알데히드를 발생시킵수 있다. 포말알데히드는 피부 및 인공호흡 감작제로 안구 및 노도자극, 급성중독성 및 발암성 이 있다.

## XI 중독성 정보

중독성 자료                      LD50 혼합물(산출)tcn/쥐 3810-4670mg/kg

옥타메칠사이트테트라실록산 재생효과의 증거는 500 및 700ppm 농도에서 실험소 동물에 나타났다.

## XII 생태학적 정보

실란트가 물과 접촉할때 메칠에칠케톡심(MEKO)를 방출한다. MEKO는 생물분해가 이루어지므로서 48mg/L(블루길) 의 96시간 LC<sub>50</sub> 및 750mg/L(물벼룩) 의 48시간 EC<sub>50</sub> 정태가 된다.

## XIII 처치고려

위험폐기물로 분류되지 않았다.

환경친화적 폐기를 조사한다. 실리콘 폐기물은 흔히 허가받은 설비에서 소각할수 있다. 단단한 폐기물은 지정된 매몰장소로 보낸다.

## XIV 운송 정보

TDG 정보                      규정품목이 아님

## XV 규정 정보

손해조항                      R22 만일 삼킨 경우  
R36 안구자극  
R43 피부저촉에 의한 감작유발

안전조항                      S23 증기 호흡 금지  
S24/25 피부 및 안구 접촉 금지  
S51 환기 잘된 장소에서 사용

WHMIS 분류                      1. D등급-유독성 및 전염성 물질  
분류2-기타 유독성 효과  
소분류A-매우 유독성 물질  
2. D등급-유독성 및 전염성 물질  
분류2-기타 유독성 효과  
소분류B-유독성 물질

RoHS 진술                      CSL 535 내유공업용실란트/접착제는 납(Pb), 수은(Hg), 카드미움(Cd), 헥사발렌트크로미움, 폴리부로미네이트 바이펜일스(PBBS) 및 폴리부로미네이트 디펜일 에더(PBDEs)를 RoHS 편람 등재와같이 포함하고



TSCA 상태	있지 않다. 본제품의 모든 성분은 TSCA화학품목록에 기재되어있다.	5
캘리포니아주 음료수안전 및 독성물 시행령 1986(법률안 65)	본제품의 어떤 성분도 2006년 발행 법률안 65에 기재 되어있지 않다.	
캐나다 DSL 상태	본제품의 모든 성분은 캐나다 DSL에 등재되어 있다.	

#### XVI 기타정보

발행일자	2007년 8월 9일
개정일자	2010년 3월 30일
작성자	Farooq Ahmed, 연구 및 개발부장
긴급연락	Baz Mistry, 연구소 소장 또는 Farooq Ahmed, 연구 및 개발부장

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