



SECTION 1. IDENTIFICATION

Product name : Sikagard®-381 Part A

Other means of identification : No data available

Company name : www.sika.ca
Canada
Pointe-Claire, QC H9R 4A9
601, avenue Delmar
Sika Canada Inc.

Telephone : (514) 697-2610 / 1 (800) 933-7452

Telefax : (514) 694-2792

E-mail address : ehs@ca.sika.com

Emergency telephone : CANUTEC (collect) (613) 996-6666 (24 hours)

Recommended use of the chemical and restrictions on use : For further information, refer to product data sheet.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Skin corrosion : Category 1C

Serious eye damage : Category 1

Skin sensitization : Category 1

Germ cell mutagenicity : Category 2

Carcinogenicity (Inhalation) : Category 1A

Reproductive toxicity : Category 1B

Specific target organ toxicity : Category 3 (Respiratory system)
- single exposure

Specific target organ toxicity : Category 1 (Lungs)
- repeated exposure

GHS label elements



Hazard pictograms



Signal Word

: Danger

Hazard Statements

: H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H335 May cause respiratory irritation.
 H341 Suspected of causing genetic defects.
 H350 May cause cancer by inhalation.
 H360 May damage fertility or the unborn child.
 H372 Causes damage to organs (Lungs) through prolonged or repeated exposure.

Precautionary Statements

Prevention:

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe mist or vapors.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
 P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labeling

There are no ingredients with unknown acute toxicity used in a mixture at a concentration $\geq 1\%$.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

| Chemical name | CAS-No. | Classification | Concentration (% w/w) |
|--|------------|---|-----------------------|
| Quartz (SiO ₂) >5µm | 14808-60-7 | Carc. 1A; H350 STOT RE 1; H372 STOT SE 3; H335 | $\geq 30 - < 60$ |
| bisphenol-F-(epichlorhydrin) epoxy resin | 28064-14-4 | Skin Irrit. 2; H315 Eye Irrit. 2A; H319 Skin Sens. 1; H317 | $\geq 10 - < 30$ |
| Trimethylolpropane triglycidylether | 30499-70-8 | Skin Corr. 1C; H314 Eye Dam. 1; H318 Skin Sens. 1B; H317 Muta. 2; H341 Repr. 1B; H360 | $\geq 5 - < 10$ |
| bisphenol-A-(epichlorhydrin) epoxy resin | 25068-38-6 | Skin Irrit. 2; H315 Eye Irrit. 2A; H319 Skin Sens. 1; H317 | $\geq 5 - < 10$ |
| Benzyl alcohol | 100-51-6 | Acute Tox. 4; H302 Acute Tox. 4; H332 Eye Irrit. 2A; H319 | $\geq 1 - < 5$ |
| bisphenol-F-(epichlorhydrin) epoxy resin | 9003-36-5 | Skin Irrit. 2; H315 Skin Sens. 1; H317 | $\geq 1 - < 5$ |
| P-tert-butylphenyl-1-(2,3-epoxy)propyl ether | 3101-60-8 | Skin Sens. 1; H317 | $\geq 0.1 - < 1$ |

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
- In case of skin contact : Take off contaminated clothing and shoes immediately.



Wash off with soap and plenty of water.
 Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
 In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 Continue rinsing eyes during transport to hospital.
 Remove contact lenses.
 Keep eye wide open while rinsing.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
 Do not induce vomiting without medical advice.
 Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person.
 Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed : Health injuries may be delayed.
 corrosive effects
 irritant effects
 sensitizing effects
 toxic effects for reproduction
 Cough
 Respiratory disorder
 Allergic reactions
 Dermatitis
 May cause an allergic skin reaction.
 Causes serious eye damage.
 May cause respiratory irritation.
 Suspected of causing genetic defects.
 May cause cancer by inhalation.
 May damage fertility or the unborn child.
 Causes damage to organs through prolonged or repeated exposure.
 Causes severe burns.

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
 Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.



SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Deny access to unprotected persons.

- Environmental precautions : Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.
Local authorities should be advised if significant spillages cannot be contained.

- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.

- Advice on safe handling : Avoid exceeding the given occupational exposure limits (see section 8).
Do not get in eyes, on skin, or on clothing.
For personal protection see section 8.
Persons with a history of skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Smoking, eating and drinking should be prohibited in the application area.
Pregnant women or women of child-bearing age should not be exposed to this product.
Follow standard hygiene measures when handling chemical products.

- Conditions for safe storage : Prevent unauthorized access.
Store in original container.
Keep container tightly closed in a dry and well-ventilated place.
Observe label precautions.
Store in accordance with local regulations.
Protect from frost.

Store in original container.
Keep in a well-ventilated place.
Observe label precautions.
Store in accordance with local regulations.

- Materials to avoid : Explosives
Oxidizing agents
Poisonous gases
Dangerous when wet



Flammable solids
 Organic peroxides
 Poisonous liquids
 Spontaneously Combustible Substances

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---------------------------------|------------|-------------------------------------|--|-----------|
| Quartz (SiO ₂) >5µm | 14808-60-7 | TWA (Respirable particulates) | 0.025 mg/m ³ | CA AB OEL |
| | | TWA (Respirable fraction) | 0.1 mg/m ³ | CA ON OEL |
| | | TWAEV (respirable dust) | 0.1 mg/m ³ | CA QC OEL |
| | | TWA (Respirable) | 0.025 mg/m ³ (Silica) | CA BC OEL |
| | | TWA (Respirable) | 0.025 mg/m ³ | CA BC OEL |
| | | TWA (Respirable) | 0.025 mg/m ³ (Silica) | CA BC OEL |
| | | TWA (Respirable particulate matter) | 0.025 mg/m ³ | ACGIH |
| | | TWA (Respirable particulate matter) | 0.025 mg/m ³ (Silica) | ACGIH |
| | | TWA (Respirable particulate matter) | 0.025 mg/m ³ | ACGIH |
| | | TWA (Respirable particulate matter) | 0.025 mg/m ³ (Silica) | ACGIH |
| silicon dioxide | 7631-86-9 | TWA (Respirable particulates) | 0.025 mg/m ³ (Silica) | CA AB OEL |
| kaolin | 1332-58-7 | TWA (Respirable) | 2 mg/m ³ | CA AB OEL |
| | | TWA (Respirable) | 2 mg/m ³ | CA BC OEL |
| | | TWAEV (respirable) | 2 mg/m ³ | CA QC OEL |



| | | | | |
|--|--|-------------------------------------|---------|-------|
| | | dust) | | |
| | | TWA (Respirable particulate matter) | 2 mg/m3 | ACGIH |

Engineering measures : Use of adequate ventilation should be sufficient to control worker exposure to airborne contaminants. If the use of this product generates dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protective equipment

Respiratory protection : Use a properly fitted NIOSH approved air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapor/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used.

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
Remove contaminated clothing and protective equipment before entering eating areas.
Wash thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : paste

Color : various

Odor : ether-like



| | | |
|--|---|---|
| Odor Threshold | : | No data available |
| pH | : | not determined |
| Melting point/range / Freezing point | : | No data available |
| Boiling point/boiling range | : | No data available |
| Flash point | : | ca. 101 °C (214 °F) (Method: closed cup) |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapor pressure | : | 0.01 hpa |
| Relative vapor density | : | No data available |
| Density | : | 1.729 g/ml (23 °C (73 °F)) |
| Solubility(ies) | | |
| Water solubility | : | partly soluble |
| Solubility in other solvents | : | No data available |
| Partition coefficient: n-octanol/water | : | No data available |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | not determined |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |

SECTION 10. STABILITY AND REACTIVITY



| | | |
|------------------------------------|---|---|
| Reactivity | : | No dangerous reaction known under conditions of normal use. |
| Chemical stability | : | The product is chemically stable. |
| Possibility of hazardous reactions | : | Stable under recommended storage conditions. |
| Conditions to avoid | : | No data available |
| Incompatible materials | : | No data available |
| Hazardous decomposition products | : | No decomposition if stored and applied as directed. |

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Components:

bisphenol-F-(epichlorhydrin) epoxy resin:

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg

Trimethylolpropane triglycidylether:

Acute oral toxicity : LD50 Oral (Rat): 3,398 mg/kg

bisphenol-A-(epichlorhydrin) epoxy resin:

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 20,000 mg/kg

Benzyl alcohol:

Acute oral toxicity : LD50 Oral (Rat): 1,620 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4.178 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

P-tert-butylphenyl-1-(2,3-epoxy)propyl ether:

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 3,466 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 Dermal (Rabbit): 6,000 mg/kg



Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer by inhalation.

| | | |
|-------------|--|------------|
| IARC | Group 1: Carcinogenic to humans Quartz (SiO ₂) >5µm (Silica dust, crystalline) | 14808-60-7 |
| | Group 2B: Possibly carcinogenic to humans Titanium dioxide | 13463-67-7 |
| | Group 2B: Possibly carcinogenic to humans ethylbenzene | 100-41-4 |
| OSHA | OSHA specifically regulated carcinogen Quartz (SiO ₂) >5µm (crystalline silica) | 14808-60-7 |
| | OSHA specifically regulated carcinogen silicon dioxide (crystalline silica) | 7631-86-9 |
| NTP | Known to be human carcinogen Quartz (SiO ₂) >5µm (Silica, Crystalline (Respirable Size)) | 14808-60-7 |

Reproductive toxicity

May damage fertility or the unborn child.

STOT-single exposure

May cause respiratory irritation.

STOT-repeated exposure

Causes damage to organs (Lungs) through prolonged or repeated exposure.
Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Further information

Product:



Quartz (14808-60-7): This classification is relevant when exposed to Quartz (silicon dioxide) in dust or powder form only, including cured product that is subject to sanding, grinding, cutting, or other surface preparation activities.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Trimethylolpropane triglycidylether:

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (microalgae)): 9 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 3.7 mg/l
Exposure time: 48 d

bisphenol-A-(epichlorhydrin) epoxy resin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.8 mg/l
Exposure time: 48 h

Benzyl alcohol:

Toxicity to fish : LC50 (Fish): > 100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : Do not empty into drains; dispose of this material and its container in a safe way.
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



May be harmful to the environment if released in large quantities.
Water polluting material.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

- UN/ID No. : UN 3082
 Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (epoxy resin)
 Class : 9
 Packing group : III
 Labels : Miscellaneous
 Packing instruction (cargo aircraft) : 964
 Packing instruction (passenger aircraft) : 964

IMDG-Code

- UN number : UN 3082
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
 Class : 9
 Packing group : III
 Labels : 9
 EmS Code : F-A, S-F
 Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

Not regulated as a dangerous good

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet.



Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Canadian lists

The following substance(s) is/are subject to a Significant New Activity Notification:

Oxirane, (chloromethyl)- Epichlorohydrin 106-89-8

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

| | | |
|-------------------|---|--|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| CA AB OEL | : | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| CA BC OEL | : | Canada. British Columbia OEL |
| CA ON OEL | : | Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act. |
| CA QC OEL | : | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| CA AB OEL / TWA | : | 8-hour Occupational exposure limit |
| CA BC OEL / TWA | : | 8-hour time weighted average |
| CA ON OEL / TWA | : | Time-Weighted Average Limit (TWA) |
| CA QC OEL / TWAEV | : | Time-weighted average exposure value |
| ADR | : | Accord européen relatif au transport international des marchandises Dangereuses par Route |
| CAS | : | Chemical Abstracts Service |
| DNEL | : | Derived no-effect level |
| EC50 | : | Half maximal effective concentration |
| GHS | : | Globally Harmonized System |
| IATA | : | International Air Transport Association |
| IMDG | : | International Maritime Code for Dangerous Goods |
| LD50 | : | Median lethal dose (the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals) |
| LC50 | : | Median lethal concentration (concentrations of the chemical in air that kills 50% of the test animals during the observation period) |
| MARPOL | : | International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 |
| OEL | : | Occupational Exposure Limit |
| PBT | : | Persistent, bioaccumulative and toxic |
| PNEC | : | Predicted no effect concentration |
| REACH | : | Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency |



SVHC : Substances of Very High Concern
vPvB : Very persistent and very bioaccumulative

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CA / Z8