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1. Identification

Product name : Sikaflex®-1c SL

Supplier : Sika Corporation

201 Polito Avenue Lyndhurst, NJ 07071

USA

www.sikausa.com

Telephone : (201) 933-8800

Telefax : (201) 804-1076

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

Emergency telephone : CHEMTREC: 800-424-9300

INTERNATIONAL: 703-527-3887

Recommended use of the chemical and restrictions on

use

For further information, refer to product data sheet.

2. Hazards identification

GHS Classification

Flammable liquids, Category 4 H227: Combustible liquid.

Respiratory sensitization, Category 1 H334: May cause allergy or asthma symptoms or

breathing difficulties if inhaled.

Skin sensitization, Category 1 Carcinogenicity, Category 1A (Inhalation) Specific target organ systemic toxicity repeated exposure, Category 2, hearing organs (Inhalation) H317: May cause an allergic skin reaction. H350i: May cause cancer by inhalation. H373: May cause damage to organs through prolonged or repeated exposure if inhaled.

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing

difficulties if inhaled.

H350i May cause cancer by inhalation.

H373 May cause damage to organs (hearing organs) through

prolonged or repeated exposure if inhaled.



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Precautionary Statements

: Prevention:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. P272 Contaminated work clothing must not be allowed out of the workplace.

P280 Wear protective gloves.

P281 Use personal protective equipment as required. P285 In case of inadequate ventilation wear respiratory protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P341 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. P308 + P313 IF exposed or concerned: Get medical advice/attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment for extinction.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.

Disposal:

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

Warning

: Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain,liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.

See Section 11 for more detailed information on health effects and symptoms.

There are no hazards not otherwise classified that have been identified during the classification process.

There are no ingredients with unknown acute toxicity used in a mixture at a concentration >= 1%.

3. Composition/information on ingredients

Hazardous ingredients

Chemical name	CAS-No.	Concentration (%)
Calcium oxide	1305-78-8	>= 3 - < 5 %
xylene	1330-20-7	>= 2 - < 5 %
Isophoronedialdimine	932742-30-8	>= 1 - < 2 %
ethylbenzene	100-41-4	>= 0.1 - < 1 %
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	4098-71-9	>= 0.1 - < 1 %



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4,4'-methylenediphenyl diisocyanate	101-68-8	>= 0.1 - < 1 %
Aliphatic polyisocyanate	28182-81-2	>= 0.1 - < 1 %
Quartz (SiO2) <5µm	14808-60-7	>= 0.1 - < 1 %
4,4'-Methylenediphenyl diisocyanate, oligomers	25686-28-6	>= 0.1 - < 1 %

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

4. First aid measures

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. If symptoms persist, call a physician.

In case of eye contact : Remove contact lenses.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

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.

Obtain medical attention.

Most important symptoms and effects, both acute and

delayed

: sensitizing effects carcinogenic effects

Asthmatic appearance Allergic reactions

See Section 11 for more detailed information on health effects

and symptoms.

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing

difficulties if inhaled.

May cause cancer by inhalation.

May cause damage to organs through prolonged or repeated

exposure if inhaled.

Protection of first-aiders : Move out of dangerous area.

Consult a physician.

Show this material safety data sheet to the doctor in

attendance.

Notes to physician : Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media : Carbon dioxide (CO2)



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Unsuitable extinguishing

media

: Water

Specific extinguishing

methods

: 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.

for fire-fighters

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

6. Accidental release measures

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

: 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.

7. Handling and storage

: Avoid formation of aerosol. Advice on safe handling

Do not breathe vapors or spray mist.

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.

Follow standard hygiene measures when handling chemical

products.

Conditions for safe storage

: Prevent unauthorized access.

Store in original container. Keep in a well-ventilated place.

Containers which are opened must be carefully resealed and

kept upright to prevent leakage. Observe label precautions.

Store in accordance with local regulations.

Materials to avoid : No data available Revision Date 09/18/2017

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8. Exposure controls/personal protection

Component	CAS-No.	Basis **	Value	Exposure limit(s)* / Form of exposure
Calcium oxide	1305-78-8	ACGIH	TWA	2 mg/m3
		OSHA Z-1	TWA	5 mg/m3
		OSHA P0	TWA	5 mg/m3
xylene	1330-20-7	OSHA Z-1	TWA	100 ppm 435 mg/m3
		OSHA P0	STEL	150 ppm 655 mg/m3
		OSHA P0	TWA	100 ppm 435 mg/m3
		ACGIH	TWA	100 ppm
		ACGIH	STEL	150 ppm
ethylbenzene	100-41-4	ACGIH	TWA	20 ppm
		ACGIH	STEL	125 ppm
		OSHA Z-1	TWA	100 ppm 435 mg/m3
		OSHA P0	TWA	100 ppm 435 mg/m3
		OSHA P0	STEL	125 ppm 545 mg/m3
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	4098-71-9	ACGIH	TWA	0.005 ppm
		OSHA P0	TWA	0.005 ppm
		OSHA P0	STEL	0.02 ppm
4,4'-methylenediphenyl diisocyanate	101-68-8	ACGIH	TWA	0.005 ppm
		OSHA Z-1	С	0.02 ppm 0.2 mg/m3
		OSHA P0	С	0.02 ppm



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				0.2 mg/m3
Quartz (SiO2) <5µm	14808-60-7	OSHA Z-3	TWA	10 mg/m3 / %SiO2+2 respirable
		OSHA Z-3	TWA	250 mppcf / %SiO2+5 respirable
		OSHA P0	TWA	0.1 mg/m3 Respirable fraction
		ACGIH	TWA	0.025 mg/m3 Respirable fraction
		OSHA Z-1	TWA	0.05 mg/m3 Respirable dust

^{*}The above mentioned values are in accordance with the legislation in effect at the date of the release of this safety data sheet.

**Basis

ACGIH. Threshold Limit Values (TLV)

OSHA P0. Table Z-1, Limit for Air Contaminat (1989 Vacated Values)

OSHA P1. Permissible Exposure Limits (PEL), Table Z-1, Limit for Air Contaminant

OSHA P2. Permissible Exposure Limits (PEL), Table Z-2

OSHA Z3. Table Z-3, Mineral Dust

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.

The engineering controls also need to keep gas, vapor or dust

concentrations below any lower explosive 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

Remarks : Chemical-resistant, impervious gloves complying with an



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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 respiratory and skin/eye protection only after vapors

have been cleared from the area.

Remove contaminated clothing and protective equipment

before entering eating areas. Wash thoroughly after handling.

9. Physical and chemical properties

Appearance viscous Color light gray

Odor aromatic

Odor Threshold No data available

Flash point 185 °F (85 °C)

Ignition temperature No data available

Decomposition temperature No data available

Lower explosion limit (Vol%) No data available

Upper explosion limit (Vol%) No data available

No data available Flammability (solid, gas)

Oxidizing properties No data available

pΗ No data available

Melting point/range /

Freezing point

Boiling point/boiling range No data available

Vapor pressure 0.01 mmHg (0.01 hpa)

Density 1.25 g/cm3

at 73 °F (23 °C)

No data available

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Water solubility : Note: insoluble

Partition coefficient: n-

octanol/water

: No data available

Viscosity, dynamic

: No data available

Viscosity, kinematic : > 20.5 mm2/s

at 104 °F (40 °C)

Relative vapor density : No data available

Evaporation rate : No data available

Burning rate : No data available

Volatile organic compounds

(VOC) content

30 g/l

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 : Extremes of temperature and direct sunlight.

Incompatible materials : No data available

11. Toxicological information

Acute toxicity

Not classified based on available information.

Ingredients:

xylene:

Acute oral toxicity : LD50 Oral (Rat): 3,523 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 1,700 mg/kg

Isophoronedialdimine:

Acute oral toxicity : LD50 Oral (Rat): > 2,000 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 2,000 mg/kg

ethylbenzene:

Acute oral toxicity : LD50 Oral (Rat): 3,500 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 5,510 mg/kg

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:

Acute oral toxicity : LD50 Oral (Rat): 4,814 mg/kg



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Acute inhalation toxicity : LC50 (Rat): 0.031 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 Dermal (Rat): > 7,000 mg/kg

4,4'-methylenediphenyl diisocyanate:

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l

Test atmosphere: dust/mist Method: Expert judgment

Aliphatic polyisocyanate:

Acute oral toxicity : LD50 Oral (Rat): > 2,500 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l

Test atmosphere: dust/mist Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg

4,4'-Methylenediphenyl diisocyanate, oligomers:

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

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l

Test atmosphere: dust/mist Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rabbit): > 9,400 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Method: OECD Test Guideline 438

Result: No eye irritation

Method: OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if

inhaled.

Germ cell mutagenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.



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STOT-repeated exposure

May cause damage to organs (hearing organs) through prolonged or repeated exposure if inhaled.

Reports have associated repeated and prolonged exposure to some of the chemicals in this product with permanent brain, liver, kidney and nervous system damage. Intentional misuse by deliberate concentration and inhalation of vapors may be harmful or fatal.

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Aspiration toxicity

Not classified based on available information.

Carcinogenicity

May cause cancer by inhalation.

IARC Group 1: Carcinogenic to humans

Quartz (SiO2) <5µm 14808-60-7 Group 2B: Possibly carcinogenic to humans

titanium dioxide 13463-67-7 Carbon black 1333-86-4 ethylbenzene 100-41-4

NTP Known to be human carcinogen

Quartz (SiO2) <5µm 14808-60-7

Carbon black (1333-86-4)

Animal Toxicity:

Rat, oral, duration 2 year

Effect: no tumors

Mouse, oral, duration 2 years

Effect: no tumors

Mouse, dermal, duration 18 months

Effect: no skin tumors

Rat, inhalation, duration 2 years

Target organ: lungs

Effect: inflammation, fibrosis, tumors

Note: Tumors in the rat lung are considered to be related to the "particle overload phenomenon" rather than to a specific chemical effect of carbon black itself in the lung. These effects in rats have been reported in many studies on other poorly soluble inorganic particles and appear to be rat specific. Tumors have not been observed in other species (i.e., mouse and hamster) for carbon black or other poorly soluble particles under similar circumstances and study conditions.

Mortality studies (human data): A study on carbon black production workers in the UK (Sorahan, 2001) found an increased risk of lung cancer in two of the five plant studied; however, the increase was not related to the dose of carbon black. Thus, the authors did not consider the increased risk in lung cancer to be due to carbon black exposure. A German study of carbon black workers at one plant (Morfeld, 2006; Buechte, 2006) found a similar increase in lung cancer risk but, like the Sorohan, 2001 (UK study) found no association with carbon black exposure. A large US study of 18 plants showed a reduction in lung cancer risk in carbon black production workers (DEII, 2006). Based upon these studies, the February 2006 Working Group at the International Agency for Research on Cancer (IARC) concluded that the human evidence



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for carcinogenicity was inadequate (IARC, 2010).

Since the IARC evaluation of carbon black, Sorahan and Harrington (2007) have re-analyzed the UK study data using an alternative exposure hypothesis and found a positive association with carbon black exposure in two of the five plants. The same exposure hypothesis was applied by Morfeld and McCunney (2009) to the German cohort; in contrast, they found no association between carbon black exposure and lung cancer risk and, thus, no support for the alternative exposure hypothesis used by Sorahan and Harrington.

Overall, as a result of these detailed investigations, no causative link between carbon black exposure and cancer risk in humans has been demonstrated.

IARC CANCER CLASSIFICATION: In 2006 IARC re-affirmed its 1995 finding that there is "inadequate evidence" from human health studies to assess whether carbon black causes cancer in humans. IARC concluded that there is "sufficient evidence" in experimental animal studies for the carcinogenicity of carbon black. IARC's overall evaluation is that carbon black is "possibly carcinogenic to humans" (Group 2B)". This conclusion was based on IARC's guidelines, which generally require such a classification if one species exhibits carcinogenicity in two or more animal studies (IARC, 2010).

Solvent extracts of carbon black were used in one study of rats in which skin tumors were found after dermal application and several studies of mice in which sarcomas were found following subcutaneous injection. IARC concluded that there was "sufficient evidence" that carbon black extracts can cause cancer in animals (Group 2B).

ICGIH CANCER CLASSIFICATION: Confirmed Animal Carcinogen with Unknown Relevance to Humans (Category A3 Carcinogen).

ASSESSMENT: Applying the guidelines of self-classification under the Globally Harmonized System of Classification and Labeling of Chemicals, carbon black is not classified as a carcinogen. Lung tumors are induced in rats as a result of repeated exposure to inert, poorly soluble particles like carbon black and other poorly soluble particles. Rats tumors are a result of a secondary non-genotoxic mechanism that has questionable relevance for classification in humans. In support of this opinion, the CLP Guidance for Specific Target Organ Toxicity - Repeated Exposure (STOT-RE), cites lung overload under mechanisms not relevant to humans. Human health studies show that exposure to carbon black does not increase the risk to carcinogenicity.

Titanium dioxide (13463-67-7)

In lifetime inhalation studies of rats, airborne respirable-size titanium dioxide particles have seen shown to cause an increase in lung tumors at concentrations associated with substantial particle lung burdens and consequential pulmonary overload and inflammation. The potential for these adverse health effects appears to be closely related to the particle size and the amount of the exposed surface area that comes into contact with the lung. However, tests with other laboratory aninals such as mice and hamsters, indicate that rats are significantly more susceptible to the pulmonary overload and inflammation that cause lung cancer. Epidemiology studies do no suggest an increased risk of cancer in humans from occupational exposure to titanium dioxide. Titanium dioxide has been characterized by IARC as possibly carcinogenic to humans (Group 2B) through inhalation (not ingestion). It has not been characterized as a potential carcinogen by either NTP or OSHA.



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12. Ecological information

Other 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.

Component:

xylene 1330-20-7 Toxicity to fish:

Species: Oncorhynchus mykiss (rainbow trout)

Dose: 3.3 mg/l Exposure time: 96 h

Isophoronedialdimine 932742-30-8 <u>Toxicity to fish:</u>

LC50

Species: Fish Dose: 87.2 mg/l Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50

Species: Daphnia Dose: > 100 mg/l Exposure time: 48 h

Toxicity to algae:

EC50

Species: Desmodesmus subspicatus (green algae)

Dose: 180.4 mg/l Exposure time: 72 h

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.

14. Transport information

DOT

Not dangerous goods

IATA

Not dangerous goods

IMDG

Not dangerous goods



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Special precautions for user

No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

15. Regulatory information

TSCA list : All chemical substances in this product are either listed on the

TSCA Inventory or are in compliance with a TSCA Inventory

exemption.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA304 Reportable Quantity

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

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)

Chronic Health Hazard

Respiratory or skin sensitization

Carcinogenicity

Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section

302 EHS TPQ.

SARA 313 : The following components are subject to reporting levels

established by SARA Title III, Section 313:

xylene 1330-20-7 2.06 % ethylbenzene 100-41-4 0.51 %

Clean Air Act

Ozone-Depletion

Potential

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act

Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

xylene 1330-20-7 2.06 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

California Prop 65 WARNING: Cancer and Reproductive Harm -

www.P65Warnings.ca.gov

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16. Other information

HMIS Classification



Caution: HMIS® rating is based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® rating is not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® rating is to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). Please note HMIS® attempts to convey full health warning information to all employees.

Notes to Reader

The information contained in this Safety Data Sheet applies only to the actual Sika Corporation ("Sika") product identified and described herein. This information is not intended to address, nor does it address the use or application of the identified Sika product in combination with any other material, product or process. All of the information set forth herein is based on technical data regarding the identified product that Sika believes to be reliable as of the date hereof. Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's current Product Data Sheet, product label and Safety Data Sheet for each Sika product, which are available at web site and/or telephone number listed in Section 1 of this SDS.

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Material number: 538809