Material Safety Data Sheet

1 . Identification of the material and supplier

Names

Product name : Sikaflex 221

Supplier

Supplier/Manufacturer : Sika Australia Pty. Ltd.
55 Elizabeth Street
(Locked Bag 482 BDC)
Wetherill Park, NSW 2164
Australia

Telephone no. : +61 2 9725 11 45

Fax no. : +61 2 9725 33 30

Emergency telephone number : +61 1800 033 111

Use of the substance/preparation Chemical product for construction and industry

2 . Hazards identification

Classification : Xn; R20
Xi; R36/38
R42

Risk phrases : R20- Harmful by inhalation.
R36/38- Irritating to eyes and skin.
R42- May cause sensitisation by inhalation.

Safety phrases : S22- Do not breathe dust.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Statement of hazardous/dangerous nature : HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3 . Composition/information on ingredients

Mixture : Yes.

Calcium carbonate	471-34-1	10 - <30
Polyvinylchloride	9002-86-2	1 - <10
Titanium dioxide	13463-67-7	1 - <10
xylene	1330-20-7	1 - <10
4,4'-methylenediphenyl diisocyanate	101-68-8	0.1 - <1
2-methyl-m-phenylene diisocyanate	584-84-9	0.1 - <1
dibutyltin dichloride	683-18-1	0 - <0.1

Other ingredients, determined not to be hazardous according to NOHSC criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

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

First-aid measures

Inhalation : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.

4 . First-aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting measures

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

No specific fire or explosion hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
metal oxide/oxides

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
calcium carbonate	**EH40/2005 WELs (United Kingdom (UK), 8/2007).** TWA: 10 mg/m³ 8 hour(s). Form: inhalable dust TWA: 4 mg/m³ 8 hour(s). Form: respirable dust
Ethylene, chloro-, polymer	**ACGIH TLV (United States, 1/2009).** TWA: 1 mg/m³ 8 hour(s). Form: Respirable fraction
Titanium dioxide	**Safe Work Australia (Australia, 8/2005).** TWA: 10 mg/m³ 8 hour(s).
xylene	**Safe Work Australia (Australia, 8/2005).** STEL: 655 mg/m³ 15 minute(s). STEL: 150 ppm 15 minute(s). TWA: 350 mg/m³ 8 hour(s). TWA: 80 ppm 8 hour(s).
4,4'-methylenediphenyl diisocyanate	**Safe Work Australia (Australia, 8/2005). Skin sensitiser.** STEL: 0.07 mg/m³ 15 minute(s). TWA: 0.02 mg/m³ 8 hour(s).
2-methyl-m-phenylene diisocyanate	**Safe Work Australia (Australia, 8/2005). Skin sensitiser.** STEL: 0.07 mg/m³ 15 minute(s). TWA: 0.02 mg/m³ 8 hour(s).
dibutyltin dichloride	**Safe Work Australia (Australia, 8/2005). Absorbed through skin. Notes: as Sn** STEL: 0.2 mg/m³, (as Sn) 15 minute(s). TWA: 0.1 mg/m³, (as Sn) 8 hour(s).

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Exposure controls

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Hands : 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.

8 . Exposure controls/personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Solid. [Paste.]

Colour : Various.

Odour : Aromatic.

Density : 1.27 g/cm^3

Vapour density : >1 [Air = 1]

Evaporation rate (butyl acetate = 1) : <1 (ether (anhydrous) = 1)

10 . Stability and reactivity

Stability : The product is stable.

Conditions to avoid : No specific data.

Materials to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Potential acute health effects

Inhalation : Harmful by inhalation. May cause sensitisation by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : Irritating to mouth, throat and stomach.

Skin contact : Irritating to skin.

Eye contact : Irritating to eyes.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
calcium carbonate	LD50 Oral	Rat	6450 mg/kg	-
	TDLo Oral	Rat	60 g/kg	-
Ethylene, chloro-, polymer	TDLo Intratracheal	Rat	50 mg/kg	-
Titanium dioxide	LD Intratracheal	Rat	>100 ug/kg	-
	TDLo Intratracheal	Mouse	100 mg/kg	-
	TDLo Intratracheal	Rat	5 mg/kg	-
	TDLo Intratracheal	Rat	1.6 mg/kg	-
	TDLo Intratracheal	Rat	1.25 mg/kg	-
	TDLo Oral	Rat	60 gm/kg	-
xylene	LD50 Dermal	Rabbit	>1700 mg/kg	-
	LD50 Intraperitoneal	Rat	2459 mg/kg	-
	LD50 Intraperitoneal	Mouse	1548 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Oral	Mouse	2119 mg/kg	-
	LD50	Rat	1700 mg/kg	-

11 . Toxicological information

	Subcutaneous			
	LDLo	Rabbit	129 mg/kg	-
	Intravenous			
	TDLo Dermal	Mouse	4.21 mL/kg	-
	LC50 Inhalation	Rat	5000 ppm	4 hours
	Gas.			
4,4'-methylenediphenyl diisocyanate	LD50 Oral	Rat	9200 mg/kg	-
	LD50 Oral	Mouse	2200 mg/kg	-
4-methyl-m-phenylene diisocyanate	LD50 Dermal	Rabbit	>16 mL/kg	-
	LD50	Mouse	56 mg/kg	-
	Intravenous			
	LD50 Oral	Rat	5800 mg/kg	-
Dibutyltin dichloride	LD50	Mouse	180 mg/kg	-
	Intravenous			
	LD50 Oral	Mouse	70 mg/kg	-
	LD50 Oral	Rat	50 mg/kg	-
	LD50 Oral	Rabbit	50 ug/kg	-
	LD50 Unreported	Rat	126 mg/kg	-
	LDLo Dermal	Rabbit	1360 mg/kg	-
	LDLo	Rat	7500 ug/kg	-
	Intraperitoneal			
	LDLo	Rat	10 mg/kg	-
	Intravenous			
	LDLo	Rabbit	5 mg/kg	-
	Intravenous			
	TDLo	Rat	6 mg/kg	-
	Intravenous			
	TDLo Oral	Rat	60 mg/kg	-
	TDLo Oral	Rat	20 mg/kg	-
	TDLo Oral	Mouse	18.3 mg/kg	-
	TDLo Oral	Rat	18.3 mg/kg	-
	TDLo Oral	Rat	7.6 mg/kg	-
	TDLo Oral	Rat	3.8 mg/kg	-
	TDLo Unreported	Rat	15 mg/kg	-

Conclusion/Summary : Not available.

Potential chronic health effects

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

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

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
wheezing and breathing difficulties
asthma

Ingestion : No specific data.

Skin : Adverse symptoms may include the following:
irritation
redness

11 . Toxicological information

Eyes : Adverse symptoms may include the following:
irritation
watering
redness

Target organs : Contains material which may cause damage to the following organs: blood, kidneys, lungs, liver, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
calcium carbonate	-	Acute LC50 >56000000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 hours
Titanium dioxide	-	Acute EC50 >1000000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - <24 hours	48 hours
	-	Acute LC50 5.5 ppm Fresh water	Daphnia - Water flea - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
	-	Acute LC50 >1000000 ug/L Marine water	Fish - Mummichog - Fundulus heteroclitus	96 hours
	-	Chronic NOEC 500 ppm Fresh water	Daphnia - Water flea - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
	-	Chronic NOEC 1 ppm Fresh water	Daphnia - Water flea - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) - <24 hours	48 hours
xylene	-	Acute LC50 8.5 ppm Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio - Adult	48 hours
	-	Acute LC50 13500 to 19200 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 0.9 g	96 hours
	-	Acute LC50 13500 to 15034 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 0.9 g	96 hours
	-	Acute LC50 13500 to 16100 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 1.1 g	96 hours
	-	Acute LC50 13400 ug/L Fresh	Fish - Fathead minnow -	96 hours

12 . Ecological information

		water	Pimephales promelas - 31 days - 18.4 mm - 0.077 g	
	-	Acute LC50 13300 to 16114 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 1.1 g	96 hours
	-	Acute LC50 12000 to 13762 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 1.1 g	96 hours
	-	Acute LC50 12000 to 16114 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 1.1 g	96 hours
	-	Acute LC50 8600 to 9591 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus - 0.9 g	96 hours
	-	Acute LC50 8500 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	-	Acute LC50 8200 to 10032 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 0.6 g	96 hours
	-	Acute LC50 3300 to 4093 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss - 0.6 g	96 hours
4-methyl-m-phenylene diisocyanate	-	Acute LC50 164500 to 240400 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - 3.2 to 4.2 cm	96 hours

Conclusion/Summary : Not available.

Other ecological information

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14 . Transport information

ADG

Not regulated.

ADG Class : -

Label No. :

ADR

Not regulated.

IMDG

Not regulated.

Marine pollutant : No.

IATA

Not regulated.

15 . Regulatory information

Standard for the Uniform Scheduling of Drugs and Poisons

7

Control of Scheduled Carcinogenic Substances

Ingredient name	Schedule
No listed substance	

Australia inventory (AICS) : All components are listed or exempted.

EU Classification : Xn; R20
Xi; R36/38
R42

16 . Other information

Person who prepared the MSDS : Validated by DeSilva on 26.08.2010.

Date of previous issue : **No previous validation.**

Indicates information that has changed from previously issued version.

Disclaimer

Material Safety Data Sheets are updated frequently. Please ensure that you have a current copy. MSDS may be obtained from the following website: www.sika.com.au

The information contained in this Safety Data Sheet corresponds to our level of knowledge at the time of publication. All warranties are excluded. Our most current General Sales Conditions shall apply. Please consult the product data sheet prior to any use and processing.