RALI MARINE SHIELD ULTRAFLEX PART A

Resene Paints Ltd

Version No: **1.4**
Safety Data Sheet according to HSNO Regulations

Issue Date: **03/04/2019**
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SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	RALI MARINE SHIELD ULTRAFLEX PART A
Synonyms	Not Available
Proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	9512

Details of the supplier of the safety data sheet

Registered company name	**Resene Paints Ltd**
Address	32-50 Vogel Street Wellington New Zealand
Telephone	+64 4 577 0500
Fax	+64 4 5773327
Website	www.resene.co.nz
Email	advice@resene.co.nz

Emergency telephone number

Association / Organisation	**NZ POISONS (24hr 7 days)**	**CHEMWATCH EMERGENCY RESPONSE**
Emergency telephone numbers	**0800 764766**	**+64 800 700 112**
Other emergency telephone numbers	**Not Available**	**+61 2 9186 1132**

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification [1]	Eye Irritation Category 2A, Respiratory Sensitizer Category 1, Specific target organ toxicity - single exposure Category 2, Acute Aquatic Hazard Category 3, Flammable Liquid Category 2, Skin Corrosion/Irritation Category 2, Reproductive Toxicity Category 2, Skin Sensitizer Category 1, Aspiration Hazard Category 1, Carcinogenicity Category 2, Chronic Aquatic Hazard Category 4, Acute Vertebrate Hazard Category 3
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*
Determined by Chemwatch using GHS/HSNO criteria	3.1B, 6.1E (aspiration), 6.3A, 6.4A, 6.5A (respiratory), 6.5B (contact), 6.7B, 6.8B, 6.9B, 9.1D, 9.3C

Label elements

Hazard pictogram(s)	
SIGNAL WORD	**DANGER**

Hazard statement(s)

H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H371	May cause damage to organs.
H402	Harmful to aquatic life.
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H361	Suspected of damaging fertility or the unborn child.
H317	May cause an allergic skin reaction.
H304	May be fatal if swallowed and enters airways.

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H351	Suspected of causing cancer.
H413	May cause long lasting harmful effects to aquatic life.
H433	Harmful to terrestrial vertebrates.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.

Precautionary statement(s) Storage

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

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures
Ingredients are required by the Hazard Substances (Safety Data Sheets) Notice 2017 to be identified:

Mixtures

CAS No	%[weight]	Name
77-58-7	0.1-0.5	dibutyltin dilaurate
4083-64-1	1-10	p-toluenesulfonyl isocyanate
Not Available	1-5	Benzotriazol derivatives
1330-20-7	1-10	xylene
100-41-4	1-5	ethylbenzene
108-88-3	10-20	toluene
28182-81-2	10-30	hexamethylene diisocyanate polymer
822-06-0	0.1-0.5	hexamethylene diisocyanate

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If product comes in contact with the eyes: Wash out immediately with fresh running water. Ensure complete irritation at the eye by keeping eyelids apart and away from eye. Seek medical attention without delay if paint persists or recurs.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	Following uptake by inhalation, move person to an area free from risk of further exposure. Oxygen or artificial respiration should be administered as needed. Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. A physician should be consulted.
Ingestion	▸ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus. ▸ If swallowed do **NOT** induce vomiting. ▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▸ Observe the patient carefully. ▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▸ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- Small quantities of water in contact with hot liquid may react violently with generation of a large volume of rapidly expanding hot sticky semi-solid foam.
- Foam.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

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Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. Slight hazard when exposed to heat, flame and oxidisers.
Fire/Explosion Hazard	▸ Liquid and vapour are highly flammable. Combustion products include: carbon dioxide (CO_2) isocyanates hydrogen cyanide and minor amounts of nitrogen oxides (NOx) other pyrolysis products typical of burning organic material.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Contain spill with inert non- combustible absorbent then place in suitable container for disposal. Clean area with large quantity of water to complete clean-up.
Major Spills	▸ Clean up all spills immediately. Remove all ignition sources. Clear area of personnel and move upwind. Wear appropriate personnel protective equipment and clothing to prevent exposure. Avoid breathing in mists or vapours and skin or eyes contact. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unprotected personnel. If possible contain the spill. Place inert absorbent, non- combustible material onto spillage. Use clean non- sparking tools to collect the material and place into suitable labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authority.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▸ Containers, even those that have been emptied, may contain explosive vapours. ▸ Electrostatic discharge may be generated during pumping - this may result in fire. ▸ Avoid unnecessary personal contact, including inhalation.
Other information	▸ Store in original containers in approved flame-proof area. ▸ Store away from incompatible materials.

Conditions for safe storage, including any incompatibilities

Suitable container	Generally packaging as originally supplied with the article or manufactured item is sufficient to protect against physical hazards.
Storage incompatibility	Toluene: ▸ reacts violently with strong oxidisers, bromine, bromine trifluoride, chlorine, hydrochloric acid/ sulfuric acid mixture, 1,3-dichloro-5,5-dimethyl-2,4-imidazolidindione, dinitrogen tetraoxide, fluorine, concentrated nitric acid, nitrogen dioxide, silver chloride, sulfur dichloride, uranium fluoride, vinyl acetate ▸ forms explosive mixtures with strong acids, strong oxidisers, silver perchlorate, tetranitromethane ▸ is incompatible with bis-toluenediazo oxide ▸ attacks some plastics, rubber and coatings ▸ may generate electrostatic charges, due to low conductivity, on flow or agitation. Xylenes: ▸ may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride ▸ attack some plastics, rubber and coatings ▸ may generate electrostatic charges on flow or agitation due to low conductivity. ▸ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. For alkyl aromatics: The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. ·Avoid reaction with water, alcohols and detergent solutions. ▸ A range of exothermic decomposition energies for isocyanates is given as 20-30 kJ/mol.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	dibutyltin dilaurate	Tin metal: Organic compounds, as Sn	0.1 mg/m3	0.2 mg/m3	Not Available	(skin) - Skin absorption
New Zealand Workplace Exposure Standards (WES)	p-toluenesulfonyl isocyanate	Isocyanates, all, (as -NCO)	0.02 mg/m3	0.07 mg/m3	Not Available	(sen) - Sensitiser; Note: These values apply to all isocyanates, including prepolymers, present in the workplace air as vapours, mist or dust.

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New Zealand Workplace Exposure Standards (WES)	xylene	Dimethylbenzene (see Xylene)	50 ppm / 217 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	ethylbenzene	Ethyl benzene	100 ppm / 434 mg/m3	543 mg/m3 / 125 ppm	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	toluene	Toluene (Toluol)	50 ppm / 188 mg/m3	Not Available	Not Available	(skin) - Skin absorption
New Zealand Workplace Exposure Standards (WES)	hexamethylene diisocyanate polymer	Isocyanates, all, (as -NCO)	0.02 mg/m3	0.07 mg/m3	Not Available	(sen) - Sensitiser; Note: These values apply to all isocyanates, including prepolymers, present in the workplace air as vapours, mist or dust.
New Zealand Workplace Exposure Standards (WES)	hexamethylene diisocyanate	Hexamethylene diisocyanate (see Isocyanates)	0.02 mg/m3	0.07 mg/m3	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
dibutyltin dilaurate	Dibutyltin dilaurate; (Dibutylbis(lauroyloxy)stannane)	1.1 mg/m3	8 mg/m3	48 mg/m3
p-toluenesulfonyl isocyanate	Isocyanate-bearing waste (as CNs N.O.S.)	6 mg/m3	8.3 mg/m3	50 mg/m3
xylene	Xylenes	Not Available	Not Available	Not Available
ethylbenzene	Ethyl benzene	Not Available	Not Available	Not Available
toluene	Toluene	Not Available	Not Available	Not Available
hexamethylene diisocyanate polymer	Hexamethylene diisocyanate polymer	7.8 mg/m3	86 mg/m3	510 mg/m3
hexamethylene diisocyanate	Hexamethylene diisocyanate; (1,6-Diisocyanatohexane)	0.018 ppm	0.2 ppm	3 ppm

Ingredient	Original IDLH	Revised IDLH
dibutyltin dilaurate	25 mg/m3	Not Available
p-toluenesulfonyl isocyanate	Not Available	Not Available
Benzotriazol derivatives	Not Available	Not Available
xylene	900 ppm	Not Available
ethylbenzene	800 ppm	Not Available
toluene	500 ppm	Not Available
hexamethylene diisocyanate polymer	Not Available	Not Available
hexamethylene diisocyanate	Not Available	Not Available

MATERIAL DATA

IFRA Prohibited Fragrance Substance
The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice.
for isocyanates:
Some jurisdictions require that health surveillance be conducted on occupationally exposed workers.
for xylenes:
IDLH Level: 900 ppm
Odour Threshold Value: 20 ppm (detection), 40 ppm (recognition)
NOTE: Detector tubes for o-xylene, measuring in excess of 10 ppm, are available commercially.
for ethyl benzene:
Odour Threshold Value: 0.46-0.60 ppm
NOTE: Detector tubes for ethylbenzene, measuring in excess of 30 ppm, are commercially available.
For toluene:
Odour Threshold Value: 0.16-6.7 (detection), 1.9-69 (recognition)
NOTE: Detector tubes measuring in excess of 5 ppm, are available.
for 1,6-hexamethylene diisocyanate (HDI):
The toxicological action of HDI is similar to that of toluene diisocyanate and and the TLV-TWA is analogous.

Exposure controls

Appropriate engineering controls	Articles or manufactured items, in their original condition, generally don't require engineering controls during handling or in normal use. Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard.
Personal protection	
Eye and face protection	▸ Safety glasses with side shields.
Skin protection	See Hand protection below
Hands/feet protection	**NOTE:** ▸ The material may produce skin sensitisation in predisposed individuals. ▸ Isocyanate resistant materials include Teflon, Viton, nitrile rubber and some PVA gloves.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.

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Respiratory protection

Respiratory protection required in insufficiently ventilated working areas and during spraying. An approved respirator with a replaceable vapour/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to AS/NZS 1715 Standard, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716 Standard, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear colourless liquid

Physical state	article	**Relative density (Water = 1)**	1.0
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	60
Initial boiling point and boiling range (°C)	110-130	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	5	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	HIGHLY FLAMMABLE.	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	51
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	423

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▸ stable.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The acute toxicity of inhaled alkylbenzenes is best described by central nervous system depression. The vapour/mist may be highly irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis and pulmonary oedema. Headache, fatigue, lassitude, irritability and gastrointestinal disturbances (e.g., nausea, anorexia and flatulence) are the most common symptoms of xylene overexposure. Xylene is a central nervous system depressant.
Ingestion	Swallowing of the liquid may cause aspiration of vomit into the lungs with the risk of haemorrhaging, pulmonary oedema, progressing to chemical pneumonitis; serious consequences may result.
Skin Contact	The material may accentuate any pre-existing dermatitis condition Toxic effects may result from skin absorption Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. The material produces moderate skin irritation; evidence exists, or practical experience predicts, that the material either ▸ produces moderate inflammation of the skin in a substantial number of individuals following direct contact, and/or ▸ produces significant, but moderate, inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.
Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.
Chronic	On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Practical evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a substantial number of individuals at a greater frequency than would be expected from the response of a normal population. Practical experience shows that skin contact with the material is capable either of inducing a sensitisation reaction in a substantial number of individuals, and/or of producing a positive response in experimental animals.

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Exposure to the material may cause concerns for human fertility, generally on the basis that results in animal studies provide sufficient evidence to cause a strong suspicion of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which are not a secondary non-specific consequence of other toxic effects.
Chronic toluene habituation occurs following intentional abuse (glue sniffing) or from occupational exposure.

Persons with a history of asthma or other respiratory problems or are known to be sensitised, should not be engaged in any work involving the handling of isocyanates.
Prolonged or repeated contact with xylenes may cause defatting dermatitis with drying and cracking.
Isocyanate vapours/mists are irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis with wheezing, gasping and severe distress, even sudden loss of consciousness, and pulmonary oedema.

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TOXICITY	IRRITATION
Not Available	Not Available

dibutyltin dilaurate

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 100 mg/24h -moderate
Inhalation (mouse) LC50: 0.075 mg/l/2H[2]	Skin (rabbit): 500 mg/24h - mild
Oral (rat) LD50: 175 mg/kg[2]	

p-toluenesulfonyl isocyanate

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Not Available
Inhalation (rat) LC50: >159.81744 mg/l/1H[2]	
Oral (rat) LD50: 2234 mg/kg[2]	

xylene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >1700 mg/kg[2]	Eye (human): 200 ppm irritant
Inhalation (rat) LC50: 4994.295 mg/l/4h[2]	Eye (rabbit): 5 mg/24h SEVERE
Oral (rat) LD50: 3523-8700 mg/kg[2]	Eye (rabbit): 87 mg mild
	Eye: adverse effect observed (irritating)[1]
	Skin (rabbit):500 mg/24h moderate
	Skin: adverse effect observed (irritating)[1]

ethylbenzene

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye (rabbit): 500 mg - SEVERE
Inhalation (mouse) LC50: 17.75 mg/l/2H[2]	Eye: no adverse effect observed (not irritating)[1]
Oral (rat) LD50: 3500 mg/kg[2]	Skin (rabbit): 15 mg/24h mild
	Skin: no adverse effect observed (not irritating)[1]

toluene

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 2mg/24h - SEVERE
Inhalation (rat) LC50: 49 mg/l/4H[2]	Eye (rabbit):0.87 mg - mild
Oral (rat) LD50: 636 mg/kg[2]	Eye (rabbit):100 mg/30sec - mild
	Eye: adverse effect observed (irritating)[1]
	Skin (rabbit):20 mg/24h-moderate
	Skin (rabbit):500 mg - moderate
	Skin: adverse effect observed (irritating)[1]
	Skin: no adverse effect observed (not irritating)[1]

hexamethylene diisocyanate polymer

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Skin (rabbit): 500 mg - moderate
Inhalation (rat) LC50: 4.625 mg/l/1he[2]	
Oral (rat) LD50: approximately2000 mg/kg[1]	

hexamethylene diisocyanate

TOXICITY	IRRITATION
Dermal (rabbit) LD50: =570 mg/kg[2]	Eye: adverse effect observed (irritating)[1]

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	Inhalation (rat) LC50: 0.06 mg/l/4h[2]	Skin: adverse effect observed (corrosive)[1]
	Oral (rat) LD50: =710 mg/kg[2]	Skin: adverse effect observed (irritating)[1]

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

DIBUTYLTIN DILAURATE	Exposure to the material may result in a possible risk of irreversible effects.
P-TOLUENESULFONYL ISOCYANATE	for p-toluenesulfonyl isocyanate The acute oral toxicity (LD50) of PTSI is 2600 mg/kg. for p-toluenesulfonamide (PTSA): PTSA was studied for oral toxicity in rats in a single dose toxicity test at doses of 889, 1333, 2000 and 3000 mg/kg in females and 2000 mg/kg in males, and in an OECD combined repeat dose and reproductive/developmental toxicity screening test at doses of 0, 120, 300 and 750 mg/kg/day in both sexes .PTSA was also tested for mutagenicity with assays for reverse mutation in bacteria and chromosomal aberrations in cultured Chinese hamster (CHL) cells.
XYLENE	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Reproductive effector in rats
ETHYLBENZENE	Ethylbenzene is readily absorbed following inhalation, oral, and dermal exposures, distributed throughout the body, and excreted primarily through urine. **NOTE:** Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA. **WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Liver changes, utheral tract, effects on fertility, foetotoxicity, specific developmental abnormalities (musculoskeletal system) recorded.
TOLUENE	For toluene: **Acute Toxicity** Humans exposed to intermediate to high levels of toluene for short periods of time experience adverse central nervous system effects ranging from headaches to intoxication, convulsions, narcosis, and death.
HEXAMETHYLENE DIISOCYANATE POLYMER	The material may produce moderate eye irritation leading to inflammation. * Bayer SDS ** Ardex SDS
HEXAMETHYLENE DIISOCYANATE	No significant acute toxicological data identified in literature search. for 1,6-hexamethylene diisocyanate: Exposures to HDI are often associated with exposures to its prepolymers, especially to a trimeric biuretic prepolymer of HDI (HDI-BT), which is widely used as a hardener in automobile and airplane paints, and which typically contains 0.5-1% unreacted HDI. for diisocyanates: In general, there appears to be little or no difference between aromatic and aliphatic diisocyanates as toxicants.
RALI MARINE SHIELD ULTRAFLEX PART A & P-TOLUENESULFONYL ISOCYANATE & HEXAMETHYLENE DIISOCYANATE POLYMER & HEXAMETHYLENE DIISOCYANATE	Allergic reactions which develop in the respiratory passages as bronchial asthma or rhinoconjunctivitis, are mostly the result of reactions of the allergen with specific antibodies of the IgE class and belong in their reaction rates to the manifestation of the immediate type. Particular attention is drawn to so-called atopic diathesis which is characterised by an increased susceptibility to allergic rhinitis, allergic bronchial asthma and atopic eczema (neurodermatitis) which is associated with increased IgE synthesis. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved.
RALI MARINE SHIELD ULTRAFLEX PART A & HEXAMETHYLENE DIISOCYANATE POLYMER & HEXAMETHYLENE DIISOCYANATE	The following information refers to contact allergens as a group and may not be specific to this product.
P-TOLUENESULFONYL ISOCYANATE & HEXAMETHYLENE DIISOCYANATE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases.
P-TOLUENESULFONYL ISOCYANATE & HEXAMETHYLENE DIISOCYANATE POLYMER & HEXAMETHYLENE DIISOCYANATE	Isocyanate vapours/mists are irritating to the upper respiratory tract and lungs; the response may be severe enough to produce bronchitis with wheezing, gasping and severe distress, even sudden loss of consciousness, and pulmonary oedema.
XYLENE & ETHYLBENZENE	The material may produce severe irritation to the eye causing pronounced inflammation.
XYLENE & ETHYLBENZENE & TOLUENE & HEXAMETHYLENE DIISOCYANATE POLYMER	The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic).

Acute Toxicity	✗	**Carcinogenicity**	✓
Skin Irritation/Corrosion	✓	**Reproductivity**	✓
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✓
Respiratory or Skin sensitisation	✓	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✓

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Continued...

Toxicity

RALI MARINE SHIELD ULTRAFLEX PART A

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

dibutyltin dilaurate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48	Crustacea	<0.463mg/L	2
EC50	72	Algae or other aquatic plants	>1mg/L	2
NOEC	48	Crustacea	1.7mg/L	2

p-toluenesulfonyl isocyanate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	>45mg/L	2
EC50	48	Crustacea	>100mg/L	2
EC50	72	Algae or other aquatic plants	25mg/L	2
NOEC	72	Algae or other aquatic plants	10mg/L	2

xylene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	2.6mg/L	2
EC50	48	Crustacea	1.8mg/L	2
EC50	72	Algae or other aquatic plants	3.2mg/L	2
NOEC	73	Algae or other aquatic plants	0.44mg/L	2

ethylbenzene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.0043mg/L	4
EC50	48	Crustacea	1.184mg/L	4
EC50	96	Algae or other aquatic plants	3.6mg/L	4
NOEC	168	Crustacea	0.96mg/L	5

toluene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	0.0073mg/L	4
EC50	48	Crustacea	3.78mg/L	5
EC50	72	Algae or other aquatic plants	12.5mg/L	4
BCF	24	Algae or other aquatic plants	10mg/L	4
NOEC	168	Crustacea	0.74mg/L	5

hexamethylene diisocyanate polymer

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	8.9mg/L	2
EC50	48	Crustacea	127mg/L	2
EC50	72	Algae or other aquatic plants	>1-mg/L	2
EC0	24	Crustacea	>=1-mg/L	2

hexamethylene diisocyanate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96	Fish	22mg/L	1
EC50	72	Algae or other aquatic plants	>77.4mg/L	2
NOEC	72	Algae or other aquatic plants	4.9mg/L	2

Legend: *Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark.
Within an aromatic series, acute toxicity increases with increasing alkyl substitution on the aromatic nucleus.
for polyisocyanates:
Polyisocyanates are not readily biodegradable.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air

Continued...

dibutyltin dilaurate	HIGH	HIGH
p-toluenesulfonyl isocyanate	HIGH	HIGH
xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
ethylbenzene	HIGH (Half-life = 228 days)	LOW (Half-life = 3.57 days)
toluene	LOW (Half-life = 28 days)	LOW (Half-life = 4.33 days)
hexamethylene diisocyanate polymer	HIGH	HIGH
hexamethylene diisocyanate	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
dibutyltin dilaurate	LOW (BCF = 110)
p-toluenesulfonyl isocyanate	LOW (LogKOW = 2.3424)
xylene	MEDIUM (BCF = 740)
ethylbenzene	LOW (BCF = 79.43)
toluene	LOW (BCF = 90)
hexamethylene diisocyanate polymer	LOW (LogKOW = 7.5795)
hexamethylene diisocyanate	LOW (LogKOW = 3.1956)

Mobility in soil

Ingredient	Mobility
dibutyltin dilaurate	LOW (KOC = 64610000)
p-toluenesulfonyl isocyanate	LOW (KOC = 882.1)
ethylbenzene	LOW (KOC = 517.8)
toluene	LOW (KOC = 268)
hexamethylene diisocyanate polymer	LOW (KOC = 18560000)
hexamethylene diisocyanate	LOW (KOC = 5864)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	·Recycle wherever possible or consult manufacturer for recycling options. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ Recycle wherever possible. Consult manufacturer for recycling option. Resene Paintwise accepts residual unwanted paint and packaging. See Resene website for Paintwise information. Or contact a Local Authority for the disposal information. Do not discharge the substance into the environment.

Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO Not Applicable
HAZCHEM	•3YE

Land transport (UN)

UN number	1263
UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
Transport hazard class(es)	Class: 3 Subrisk: Not Applicable

Continued...

Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: 163; 367 Limited quantity: 5 L

Air transport (ICAO-IATA / DGR)

UN number	1263
UN proper shipping name	Paint (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base); Paint related material (including paint thinning or reducing compounds)
Transport hazard class(es)	ICAO/IATA Class: 3 ICAO / IATA Subrisk: Not Applicable ERG Code: 3L
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	Special provisions: A3 A72 A192 Cargo Only Packing Instructions: 364 Cargo Only Maximum Qty / Pack: 60 L Passenger and Cargo Packing Instructions: 353 Passenger and Cargo Maximum Qty / Pack: 5 L Passenger and Cargo Limited Quantity Packing Instructions: Y341 Passenger and Cargo Limited Maximum Qty / Pack: 1 L

Sea transport (IMDG-Code / GGVSee)

UN number	1263
UN proper shipping name	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
Transport hazard class(es)	IMDG Class: 3 IMDG Subrisk: Not Applicable
Packing group	II
Environmental hazard	Not Applicable
Special precautions for user	EMS Number: F-E , S-E Special provisions: 163 367 Limited Quantities: 5 L

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002669	Surface Coatings and Colourants (Flammable, Toxic [6.7]) Group Standard 2017

DIBUTYLTIN DILAURATE(77-58-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

P-TOLUENESULFONYL ISOCYANATE(4083-64-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

XYLENE(1330-20-7) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

ETHYLBENZENE(100-41-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO
IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

TOLUENE(108-88-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

HEXAMETHYLENE DIISOCYANATE POLYMER(28182-81-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

HEXAMETHYLENE DIISOCYANATE(822-06-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

GESAMP/EHS Composite List - GESAMP Hazard Profiles
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Air Transport Association (IATA) Dangerous Goods Regulations
International Maritime Dangerous Goods Requirements (IMDG Code)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)
United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in open containers
3.1B	100 L in containers greater than 5 L 250 L in containers up to and including 5 L	50 L 50 L

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
3.1B	250 L (when in containers greater than 5 L) 500 L (when in containers up to and including 5 L)

Refer Group Standards for further information

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (toluene; xylene; ethylbenzene; dibutyltin dilaurate; Benzotriazol derivatives; p-toluenesulfonyl isocyanate; hexamethylene diisocyanate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (Benzotriazol derivatives)

Continued...

Japan - ENCS	No (hexamethylene diisocyanate polymer; Benzotriazol derivatives)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (hexamethylene diisocyanate polymer; Benzotriazol derivatives; p-toluenesulfonyl isocyanate)
Vietnam - NCI	Yes
Russia - ARIPS	No (Benzotriazol derivatives)
Thailand - TECI	No (hexamethylene diisocyanate polymer)
Legend:	*Yes = All ingredients are on the inventory* *No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 OTHER INFORMATION

Revision Date	03/04/2019
Initial Date	03/04/2019

SDS Version Summary

Version	Issue Date	Sections Updated
0.4.1.1.1	03/04/2019	Acute Health (inhaled), Acute Health (skin), Acute Health (swallowed), Classification, First Aid (swallowed)

Other information

Ingredients with multiple cas numbers

Name	CAS No
hexamethylene diisocyanate polymer	28182-81-2, 53200-31-0, 1192214-73-5

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment.

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end of SDS