

# Glacier, Wave, Wave MV, Wave HV, ROK, ICE, Luna, Aura and LC Opaquer

#### **SDI Limited**

Version No: **6.1.1.1**Safety Data Sheet (Conforms to Regulations (EC) No 2015/830)

Issue Date: 18/03/2016 Print Date: 23/03/2016 Initial Date: Not Available L.REACH.GBR.EN

## SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### 1.1.Product Identifier

Product name	Glacier, Wave, Wave MV, Wave HV, ROK, ICE, Luna, Aura and LC Opaquer	
Synonyms	ot Available	
Other means of identification	Not Available	

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	For filling of cavitated teeth by dental professionals.
Uses advised against	Not Applicable

## 1.3. Details of the supplier of the safety data sheet

Registered company name	SDI Limited	SDI Brazil Industria E Comercio Ltda	SDI Germany GmbH	
Address	3-15 Brunsdon Street VIC Bayswater 3153 Australia	Rua Dr. Virgilio de Carvalho Pinto, 612 São Paulo CEP 05415-020 Brazil	Hansestrasse 85 Cologne D-51149 Germany	
Telephone	+61 3 8727 7111 (Business Hours)	+55 11 3092 7100	+49 0 2203 9255 0	
Fax	+61 3 8727 7222 +55 11 3092 7101		+49 0 2203 9255 200	
Website	www.sdi.com.au	www.sdi.com.au	www.sdi.com.au	
Email	info@sdi.com.au	brasil@sdi.com.au	germany@sdi.com.au	
Registered company name	SDI (North America) Inc.			
Address	1279 Hamilton Parkway IL Itasca 60143 United States			
Telephone	+1 630 361 9200 (Business hours)			
Fax	Not Available			
Website	Not Available			
Email	USA.Canada@sdi.com.au			

## 1.4. Emergency telephone number

Association / Organisation	SDI Limited	Not Available	Not Available
Emergency telephone numbers	+61 3 8727 7111	Not Available	Not Available
Other emergency telephone numbers	ray.cahill@sdi.com.au	Not Available	Not Available
Association / Organisation	Not Available		
Emergency telephone numbers	+61 3 8727 7111		
Other emergency telephone numbers	Not Available		

# **SECTION 2 HAZARDS IDENTIFICATION**

## 2.1. Classification of the substance or mixture

Considered a dangerous mixture according to directive 1999/45/EC, Reg. (EC) No 1272/2008 (if applicable) and their amendments. Not classified as Dangerous Goods for transport purposes.

DSD classification	In case of mixtures, classification has been prepared by following DPD (Directive 1999/45/EC) and CLP Regulation (EC) No 1272/2008 regulations	
DPD classification <sup>[1]</sup>	R43 May cause SENSITISATION by skin contact.	
Legend:	1. Classification by vendor; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI	

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Classification according to regulation (EC) No 1272/2008 [CLP] [1]

Skin Sensitizer Category 1

Legend:

1. Classification by vendor; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

#### 2.2. Label elements

**CLP** label elements



SIGNAL WORD

WARNING

## Hazard statement(s)

H317

May cause an allergic skin reaction.

#### Supplementary statement(s)

Not Applicable

## Precautionary statement(s) Prevention

P280	Wear protective gloves/protective clothing/eye protection/face protection.	
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.	
P272	Contaminated work clothing should not be allowed out of the workplace.	

## Precautionary statement(s) Response

P302+P352	IF ON SKIN: Wash with plenty of water and soap.	
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.	
P362+P364 Take off contaminated clothing and wash it before reuse.		

## Precautionary statement(s) Storage

Not Applicable

## Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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#### 2.3. Other hazards

May produce discomfort of the eyes, respiratory tract and  $\mbox{skin}^{\star}.$ 

REACh - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

## **SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

#### 3.1.Substances

See 'Composition on ingredients' in Section 3.2

# 3.2.Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to directive 67/548/EEC [DSD]	Classification according to regulation (EC) No 1272/2008 [CLP]
1.Not Available 2.Not Available 3.Not Available 4.Not Available	6-46	acrylic monomers as	Not Applicable	Not Applicable
1.72869-86-4 2.276-957-5 3.Not Available 4.01-2119408252-52-XXXX		diurethane dimethacrylate	R36/37/38, R43 <sup>[1]</sup>	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Skin Sensitizer Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation); H315, H319, H317, H335 <sup>[1]</sup>
1.109-16-0 2.203-652-6 3.Not Available 4.Not Available		triethylene glycol dimethacrylate	R36/37/38, R43, R51/53	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Skin Sensitizer Category 1, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Chronic Aquatic Hazard Category 2; H315, H319, H317, H335, H411 [1]
1.24448-20-2 2.246-263-7 3.Not Available 4.Not Available		2,2-bis[4-(2- methacryloxy)ethoxy)phenyl]propane	R36/37/38, R50/53 <sup>[1]</sup>	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation), Chronic Aquatic Hazard Category 1; H315, H319, H335, H410 [1]
Legend:	1. Classification by vendor; 2. Classification drawn from EC Directive 67/548/EEC - Annex I; 3. Classification drawn from EC Directive 1272/2008 - Annex VI 4. Classification drawn from C&L			

# **SECTION 4 FIRST AID MEASURES**

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## 4.1. Description of first aid measures

General	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.  If this product comes in contact with the eyes:  Wash out immediately with fresh running water.  Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.  Seek medical attention without delay; if pain persists or recurs seek medical attention.  Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.  If furnes, aerosols or combustion products are inhaled remove from contaminated area.  Other measures are usually unnecessary.  If irritation continues, seek medical attention.  Seek medical attention.
Eye Contact	If this product comes in contact with the eyes:  Wash out immediately with fresh running water.  Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.  Seek medical attention without delay; if pain persists or recurs seek medical attention.  Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
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	If fumes, aerosols or combustion products are inhaled remove from contaminated area.  Other measures are usually unnecessary.  If irritation continues, seek medical attention.
Ingestion	Seek medical attention.

## 4.2 Most important symptoms and effects, both acute and delayed

See Section 11

## 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

# **SECTION 5 FIREFIGHTING MEASURES**

## 5.1. Extinguishing media

- Foam.
- ► Dry chemical powder.
- ▶ BCF (where regulations permit).
- ► Carbon dioxide.
- ▶ Water spray or fog Large fires only.

# 5.2. Special hazards arising from the substrate or mixture

5.2. Special nazarus arising from the substrate of mixture			
Fire Incompatibility	None known.		
5.3. Advice for firefighters			
Fire Fighting	<ul> <li>Alert Fire Brigade and tell them location and nature of hazard.</li> <li>May be violently or explosively reactive.</li> <li>Wear full body protective clothing with breathing apparatus.</li> <li>Prevent, by any means available, spillage from entering drains or water course.</li> <li>Fight fire from a safe distance, with adequate cover.</li> <li>If safe, switch off electrical equipment until vapour fire hazard removed.</li> <li>Use water delivered as a fine spray to control the fire and cool adjacent area.</li> <li>Avoid spraying water onto liquid pools.</li> <li>Do not approach containers suspected to be hot.</li> <li>Cool fire exposed containers with water spray from a protected location.</li> <li>If safe to do so, remove containers from path of fire.</li> </ul>		
Fire/Explosion Hazard	<ul> <li>Non combustible.</li> <li>Not considered a significant fire risk, however containers may burn.</li> <li>May emit corrosive fumes.Decomposes on heating and produces; carbon dioxide (CO2) carbon monoxide (CO)</li> </ul>		

# **SECTION 6 ACCIDENTAL RELEASE MEASURES**

# 6.1. Personal precautions, protective equipment and emergency procedures

See section 8

# 6.2. Environmental precautions

See section 12

## 6.3. Methods and material for containment and cleaning up

Minor Spills	<ul> <li>Clean up all spills immediately.</li> <li>Avoid contact with skin and eyes.</li> <li>Wear impervious gloves and safety goggles.</li> <li>Trowel up/scrape up.</li> <li>Place spilled material in clean, dry, sealed containe</li> </ul>

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Flush spill area with water.
Minor hazard.

Clear area of personnel.

- ▶ Alert Fire Brigade and tell them location and nature of hazard.
- · Control personal contact with the substance, by using protective equipment as required.
- ► Prevent spillage from entering drains or water ways.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.
- Wash area and prevent runoff into drains or waterways.
- ▶ If contamination of drains or waterways occurs, advise emergency services.

#### 6.4. Reference to other sections

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

#### **SECTION 7 HANDLING AND STORAGE**

**Major Spills** 

#### 7.1. Precautions for safe handling

- Avoid all personal contact, including inhalation.
   Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- ▶ Prevent concentration in hollows and sumps.
- ▶ DO NOT enter confined spaces until atmosphere has been checked.
- ▶ DO NOT allow material to contact humans, exposed food or food utensils.
- Avoid contact with incompatible materials.
  - ► When handling, **DO NOT** eat, drink or smoke.
  - Keep containers securely sealed when not in use.
  - Avoid physical damage to containers.
  - Always wash hands with soap and water after handling.
  - ▶ Work clothes should be laundered separately. Launder contaminated clothing before re-use.
  - Use good occupational work practice
  - ▶ Observe manufacturer's storage and handling recommendations contained within this SDS.
  - ▶ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Fire and explosion protection

Safe handling

p. 0.000...

Other information

Store between 10 and 25 deg. C. **Do not** store in direct sunlight.

#### 7.2. Conditions for safe storage, including any incompatibilities

See section 5

Suitable container	<ul> <li>DO NOT repack. Use containers supplied by manufacturer only.</li> <li>Check that containers are clearly labelled and free from leaks</li> </ul>
Storage incompatibility	► Avoid storage with reducing agents.

## 7.3. Specific end use(s)

See section 1.2

#### **SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

## 8.1. Control parameters

DERIVED NO EFFECT LEVEL (DNEL)

Not Available

PREDICTED NO EFFECT LEVEL (PNEC)

Not Available

## OCCUPATIONAL EXPOSURE LIMITS (OEL)

## INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available						

#### **EMERGENCY LIMITS**

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
diurethane dimethacrylate	Diurethane dimethacrylate	60 mg/m3	660 mg/m3	4000 mg/m3
triethylene glycol dimethacrylate	Methacrylic acid, diester with triethylene glycol; (Polyester TGM3)	33 mg/m3	360 mg/m3	2100 mg/m3

Ingredient	Original IDLH	Revised IDLH
acrylic monomers as	Not Available	Not Available
diurethane dimethacrylate	Not Available	Not Available
triethylene glycol dimethacrylate	Not Available	Not Available
2,2-bis[4-(2- methacryloxy)ethoxy)phenyl]propane	Not Available	Not Available

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#### 8.2. Exposure controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in special circumstances. If risk of overexposure exists, wear approved respirator. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. Provide adequate ventilation in warehouses and enclosed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

# 8.2.1. Appropriate engineering controls

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, furmes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid furmes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion)	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

#### 8.2.2. Personal protection











#### 0.2.2. Fersonal protection

No special equipment for minor exposure i.e. when handling small quantities.

# Eye and face protection

OTHERWISE:

Safety glasses with side shields.

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

# Skin protection

See Hand protection below

## Hands/feet protection

- ▶ Wear chemical protective gloves, e.g. PVC.
- ▶ Wear safety footwear or safety gumboots, e.g. Rubber
- ▶ Rubber Gloves

#### Body protection

See Other protection below

# Other protection

- Overalls.
- P.V.C. apron.
- Barrier cream.Skin cleansing cream.
- ► Eye wash unit.

## Thermal hazards

Not Available

## Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS	-	A-PAPR-AUS / Class 1
up to 50 x ES	-	A-AUS / Class 1	-
up to 100 x ES	-	A-2	A-PAPR-2 ^

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 $A(All\ classes) = Organic\ vapours,\ B\ AUS\ or\ B1 = Acid\ gasses,\ B2 = Acid\ gas\ or\ hydrogen\ cyanide(HCN),\ B3 = Acid\ gas\ or\ hydrogen\ cyanide(HCN),\ E = Sulfur\ dioxide(SO2),\ G = Agricultural\ chemicals,\ K = Ammonia(NH3),\ Hg = Mercury,\ NO = Oxides\ of\ nitrogen,\ MB = Methyl\ bromide,\ AX = Low\ boiling\ point\ organic\ compounds(below\ 65\ degC)$ 

## 8.2.3. Environmental exposure controls

See section 12

## **SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**

## 9.1. Information on basic physical and chemical properties

Appearance	Tooth coloured viscous/ flowable paste with ester-like odour, insoluble in water.		
Physical state	Free-flowing Paste	Relative density (Water = 1)	1.5-2.0
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)	Not Available
Initial boiling point and boiling range (°C)	Gel before boiling	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	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)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

## 9.2. Other information

Not Available

# **SECTION 10 STABILITY AND REACTIVITY**

10.1.Reactivity	See section 7.2
10.2.Chemical stability Product is considered stable and hazardous polymerisation will not occur.	
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

# **SECTION 11 TOXICOLOGICAL INFORMATION**

## 11.1. Information on toxicological effects

Inhaled	Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.
Ingestion	The material has <b>NOT</b> been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Skin Contact	Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant 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. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
Еуе	Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

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Chronic

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.

Glacier, Wave, Wave MV, Wave HV, ROK, ICE, Luna, Aura and LC	TOXICITY	IRRITATION	
Opaquer	Not Available	Not Available	
directions discosts constate	TOXICITY	IRRITATION	
diurethane dimethacrylate	Oral (rat) LD50: >5000 mg/kg <sup>[1]</sup>	Not Available	
	TOXICITY	IRRITATION	
triethylene glycol dimethacrylate	Oral (rat) LD50: 10837 mg/kgd <sup>[2]</sup>	Nil reported	
2,2-bis[4-(2-	TOXICITY	IRRITATION	
methacryloxy)ethoxy)phenyl]propane	Not Available	Not Available	

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

The following information refers to contact allergens as a group and may not be specific to this product.

Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic

## DIURETHANE DIMETHACRYLATE

condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

UV (ultraviolet)/ EB (electron beam) acrylates are generally of low toxicity

The first group consists of well-defined acrylates which can be described by a simple idealised chemical; they are low molecular weight species with a very narrow weight distribution profile.

The eurymeric acrylates cannot be described by an idealised structure and may differ fundamentally between various suppliers; they are of relatively high molecular weigh and possess a wide weight distribution.

Stenomeric acrylates are usually more hazardous than the eurymeric substances. Stenomeric acrylates are also well defined which allows comparison and exchange of toxicity data - this allows more accurate classification.

The stenomerics cannot be classified as a group; they exhibit substantial variation.

Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence. For example

Monalkyl or monoarylesters of acrylic acids should be classified as R36/37/38 and R51/53

Monoalkyl or monoaryl esters of methacrylic acid should be classified as R36/37/38  $\,$ 

\* Possible carcinogen; possible sensitizer; possible irreversible effects \* Polysciences MSDS

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# TRIETHYLENE GLYCOL DIMETHACRYLATE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dvspnea. cough and mucus production.

#### 2,2-BIS[4-(2-METHACRYLOXY)ETHOXY)PHENYL]PROPANE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

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UV (ultraviolet)/ EB (electron beam) acrylates are generally of low toxicity

UV/EB acrylates are divided into two groups; "stenomeric" and "eurymeric" acrylates.

The first group consists of well-defined acrylates which can be described by a simple idealised chemical; they are low molecular weight species with a very narrow weight distribution profile.

The eurymeric acrylates cannot be described by an idealised structure and may differ fundamentally between various suppliers; they are of relatively high molecular weigh and possess a wide weight distribution.

Stenomeric acrylates are usually more hazardous than the eurymeric substances. Stenomeric acrylates are also well defined which allows comparison and exchange of toxicity data - this allows more accurate classification.

The stenomerics cannot be classified as a group; they exhibit substantial variation.

No significant acute toxicological data identified in literature search.

The chemical structure of hydroxylated diphenylalkanes or bisphenols consists of two phenolic rings joined together through a bridging carbon. This class of endocrine disruptors that mimic oestrogens is widely used in industry, particularly in plastics

Bisphenol A (BPA) and some related compounds exhibit oestrogenic activity in human breast cancer cell line MCF-7, but there were remarkable differences in activity. Several derivatives of BPA exhibited significant thyroid hormonal activity towards rat pituitary cell line GH3, which releases growth hormone in a thyroid hormone-dependent manner. However, BPA and several other derivatives did not show such activity. Results suggest that the 4-hydroxyl group of the A-phenyl ring and the B-phenyl ring of BPA derivatives are required for these hormonal activities, and substituents at the 3,5-positions of the phenyl rings and the bridging alkyl moiety markedly influence the activities

Bisphenols promoted cell proliferation and increased the synthesis and secretion of cell type-specific proteins. When ranked by proliferative potency, the longer the alkyl substituent at the bridging carbon, the lower the concentration needed for maximal cell yield; the most active compound contained two propyl chains at the bridging carbon. Bisphenols with two hydroxyl groups in the para position and an angular configuration are suitable for appropriate hydrogen bonding to the acceptor site of the oestrogen receptor.

Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety (CH2=CHCOO or CH2=C(CH3)COO) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing.

This position has now been revised and acrylates and methacrylates are no longer de facto carcinogens.

Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence. For example

Monalkyl or monoarylesters of acrylic acids should be classified as R36/37/38 and R51/53 Monoalkyl or monoaryl esters of methacrylic acid should be classified as R36/37/38

Acute Toxicity	0	Carcinogenicity	0
Skin Irritation/Corrosion	0	Reproductivity	0
Serious Eye Damage/Irritation	0	STOT - Single Exposure	0
Respiratory or Skin sensitisation	<b>✓</b>	STOT - Repeated Exposure	0
Mutagenicity	0	Aspiration Hazard	0

Legend:

Data available but does not fill the criteria for classification

Data required to make classification available

O - Data Not Available to make classification

## **SECTION 12 ECOLOGICAL INFORMATION**

## 12.1. Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
diurethane dimethacrylate	EC50	48	Crustacea	>1.2mg/L	2
diurethane dimethacrylate	EC50	72	Algae or other aquatic plants	>0.68mg/L	2
diurethane dimethacrylate	NOEC	72	Algae or other aquatic plants	>0.21mg/L	2
triethylene glycol dimethacrylate	LC50	96	Fish	16.4mg/L	2
triethylene glycol dimethacrylate	EC50	504	Crustacea	51.9mg/L	2
triethylene glycol dimethacrylate	EC50	72	Algae or other aquatic plants	72.8mg/L	2
triethylene glycol dimethacrylate	NOEC	72	Algae or other aquatic plants	18.6mg/L	2
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - 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				

DO NOT discharge into sewer or waterways

#### 12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
triethylene glycol dimethacrylate	LOW	LOW

# 12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
triethylene glycol dimethacrylate	LOW (LogKOW = 1.88)

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Ingredient	Mobility
triethylene glycol dimethacrylate	LOW (KOC = 10)

## 12.5. Results of PBT and vPvB assessment

	P	В	Т
Relevant available data	Not Available	Not Available	Not Available
PBT Criteria fulfilled?	Not Available	Not Available	Not Available

#### 12.6. Other adverse effects

No data available

# **SECTION 13 DISPOSAL CONSIDERATIONS**

## 13.1. Waste treatment methods

Product / Packaging disposal	Consult State Land Waste Management Authority for disposal. Bury residue in an authorised landfill.
Waste treatment options	Not Available
Sewage disposal options	Not Available

# **SECTION 14 TRANSPORT INFORMATION**

## **Labels Required**

Marine Pollutant	NO
HAZCHEM	Not Applicable

# Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1.UN number	Not Applicable		
14.2.Packing group	Not Applicable		
14.3.UN proper shipping name	Not Applicable		
14.4.Environmental hazard	Not Applicable		
14.5. Transport hazard class(es)	Class Not Applicable Subrisk Not Applicable		
14.6. Special precautions for user	Hazard identification (Kemler)  Classification code  Hazard Label  Special provisions  Limited quantity	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable	

# Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number	Not Applicable			
14.2. Packing group	Not Applicable			
14.3. UN proper shipping name	Not Applicable			
14.4. Environmental hazard	Not Applicable			
14.5. Transport hazard class(es)	ICAO/IATA Class Not Applicable ICAO / IATA Subrisk Not Applicable ERG Code Not Applicable			
14.6. Special precautions for user	Special provisions  Cargo Only Packing Instructions  Cargo Only Maximum Qty / Pack  Passenger and Cargo Packing Instructions  Passenger and Cargo Maximum Qty / Pack  Passenger and Cargo Limited Quantity Packing Instructions  Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable		

# Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. UN number Not Applicable

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14.2. Packing group	Not Applicable
14.3. UN proper shipping name	Not Applicable
14.4. Environmental hazard	Not Applicable
14.5. Transport hazard class(es)	IMDG Class Not Applicable  IMDG Subrisk Not Applicable
14.6. Special precautions for user	EMS Number Not Applicable  Special provisions Not Applicable  Limited Quantities Not Applicable

## Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Not Applicable		
Not Applicable		
Not Applicable		
Not Applicable		
Not Applicable Not Applicable		
Classification code Not Applicable		
Special provisions Not Applicable		
Limited quantity Not Applicable		
Equipment required Not Applicable		
Fire cones number Not Applicable		

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

Not Applicable

## **SECTION 15 REGULATORY INFORMATION**

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

## DIURETHANE DIMETHACRYLATE(72869-86-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

(English)

TRIETHYLENE GLYCOL DIMETHACRYLATE(109-16-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

(English)

# 2,2-BIS[4-(2-METHACRYLOXY)ETHOXY)PHENYL]PROPANE(24448-20-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

European Customs Inventory of Chemical Substances ECICS (English)

European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

(English)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : 67/548/EEC, 1999/45/EC, 98/24/EC, 92/85/EC, 94/33/EC, 91/689/EEC, 1999/13/EC, Commission Regulation (EU) 2015/830, Regulation (EC) No 1272/2008 and their amendments as well as the following British legislation: - The Control of Substances Hazardous to Health Regulations (COSHH) 2002 - COSHH Essentials - The Management of Health and Safety at Work Regulations 1999

## 15.2. Chemical safety assessment

For further information please look at the Chemical Safety Assessment and Exposure Scenarios prepared by your Supply Chain if available.

#### **ECHA SUMMARY**

Ingredient	CAS number	Index No	ECHA Dossier		
diurethane dimethacrylate	72869-86-4 Not Available 0		01-2119408252-52-XXXX		
Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)		Pictograms Signal Word Code(s)	Hazard Statement Code(s)	
1	Aquatic Chronic 3, Skin Sens. 1		Wng	H317	
2	Aquatic Chronic 3, Skin Sens. 1, Eye Irrit. 2, Aquatic Chronic 2, Not Classified, Skin Irrit. 2, STOT SE 3		Wng, GHS07, GHS09	H317, H319, H315, H335	
Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.					
Ingradiant	CAS number	Inday No.	ECHA Dession		

Ingredient	CAS number	Index No		ECHA Dossier	
triethylene glycol dimethacrylate	109-16-0	Not Available		Not Available	
Harmonisation (C&L	Hazard Class and Category Code(s)		Pictograms	Signal Word	Hazard Statement Code(s)

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Inventory)		Code(s)	
1	Not Classified	Wng, GHS08, Dgr	H317, H315, H319, H335, H334
2	Skin Sens. 1B, Not Classified, Skin Sens. 1, Skin Irrit. 2, Eye Irrit. 2, STOT SE 3, Resp. Sens. 1	Wng, GHS08, Dgr	H317, H315, H319, H335, H334

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
2,2-bis[4-(2- methacryloxy)ethoxy)phenyl]propane	24448-20-2	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	Wng, GHS08, Dgr	H315, H317, H319, H335, H334
2	Not Classified, Skin Irrit. 2, Skin Sens. 1, Eye Irrit. 2, STOT SE 3, Resp. Sens. 1	Wng, GHS08, Dgr	H315, H317, H319, H335, H334

 $Harmonisation\ Code\ 1 = The\ most\ prevalent\ classification.\ Harmonisation\ Code\ 2 = The\ most\ severe\ classification.$ 

National Inventory	Status
Australia - AICS	Y
Canada - DSL	N (diurethane dimethacrylate)
Canada - NDSL	N (2,2-bis[4-(2-methacryloxy)ethoxy)phenyl]propane; triethylene glycol dimethacrylate)
China - IECSC	Υ
Europe - EINEC / ELINCS / NLP	Υ
Japan - ENCS	N (diurethane dimethacrylate)
Korea - KECI	Υ
New Zealand - NZIoC	Υ
Philippines - PICCS	Υ
USA - TSCA	Υ
Legend:	Y = All ingredients are on the inventory  N = 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**

## Full text Risk and Hazard codes

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
	A
R36/37/38	Irritating to eyes, respiratory system and skin.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

# Other information

## **DSD / DPD label elements**



Relevant risk statements are found in section 2.1

Indication(s) of danger	Xi	
SAFETY ADVICE		
S02	Keep out of reach of children.	
S23	Do not breathe gas/fumes/vapour/spray.	
S24	Avoid contact with skin.	
S35	This material and its container must be disposed of in a safe way.	
S37	Wear suitable gloves.	
S40	To clean the floor and all objects contaminated by this material, use water and detergent.	
S46	If swallowed, seek medical advice immediately and show this container or label.	
S56	Dispose of this material and its container at hazardous or special waste collection point.	

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#### Ingredients with multiple cas numbers

Name	CAS No
diurethane dimethacrylate	41137-60-4, 72869-86-4

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by SDI Limited using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

EN 13832 Footwear protecting against chemicals

EN 133 Respiratory protective devices

#### **Definitions and abbreviations**

PC – TWA: Permissible Concentration-Time Weighted Average

PC-STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

The information contained in the Safety Data Sheet is based on data considered to be accurate, however, no warranty is expressed or implied regarding the accuracy of the data or the results to be obtained from the use thereof.

Other information:

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