Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Safe Work Australia, December 2011)

SECTION 1: Identification

1.1. Product identifier
3M™ Piezo Inkjet Ink 8915UV Magenta

Product Identification Numbers
75-0302-6408-1

1.2. Recommended use and restrictions on use

Recommended use
Professional printing ink for use in traffic safety systems., Industrial use.

For Industrial or Professional use only.

1.3. Supplier's details
Address: 3M Australia - Building A, 1 Rivett Road, North Ryde NSW 2113
Telephone: 136 136
E Mail: productinfo.au@mmm.com
Website: www.3m.com.au

1.4. Emergency telephone number
EMERGENCY: 1800 097 146 (Australia only)

SECTION 2: Hazard identification

This product is classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011, in accordance with applicable State and Territory legislation.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

2.1. Classification of the substance or mixture
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 1.
Skin Sensitizer: Category 1.
Carcinogenicity: Category 2.
Reproductive Toxicity: Category 1.
Specific Target Organ Toxicity (single exposure): Category 3

2.2. Label elements
The label elements below were prepared in accordance with the Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals (Safe Work Australia, December 2011). This information may be different from the actual product label.

Signal word
Danger

Symbols
Corrosion |Exclamation mark |Health Hazard |

Pictograms

Hazard statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H335	May cause respiratory irritation.

Precautionary statements

Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280B	Wear protective gloves and eye/face protection.

Response:

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTRE or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Other assigned/identified product hazards
- May cause chemical gastrointestinal burns.

2.4. Other hazards which do not result in classification
May be harmful if swallowed.
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
Isobornyl acrylate	5888-33-5	10 - 30
Isooctyl acrylate	29590-42-9	10 - 30
Tetrahydrofurfuryl acrylate	2399-48-6	10 - 30
1,6-Hexanediol diacrylate	13048-33-4	< 10
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	67906-98-3	5 - 10
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	72162-39-1	< 10
Organic pigment	Trade Secret	5 - 10
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	1 - 5
Benzophenone	119-61-9	1 - 5
Polyalkylene imine TS# 800967-5312	Trade Secret	1 - 5
Camphene	79-92-5	< 0.2
Tetrahydrofurfuryl alcohol	97-99-4	< 0.2

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact
Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If swallowed
Rinse mouth. Do not induce vomiting. Get immediate medical attention.

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

Irritating to the respiratory tract (coughing, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain). Allergic skin reaction (redness, swelling, blistering, and itching). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required

Not applicable.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.

5.3. Special protective actions for fire-fighters
Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Store away from oxidising agents.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Benzophenone	119-61-9	AIHA	TWA: 0.5 mg/m³	
1,6-Hexanediol diacrylate	13048-33-4	AIHA	TWA:1 mg/m3(0.11 ppm)	Dermal Sensitizer
Tetrahydrofurfuryl acrylate	2399-48-6	Manufacturer determined	TWA:0.1 ppm(0.64 mg/m3);STEL:0.3 ppm(1.91 mg/m3)	Dermal Sensitizer
Isooctyl acrylate	29590-42-9	AIHA	TWA:37.5 mg/m3(5 ppm)	
Tetrahydrofurfuryl alcohol	97-99-4	AIHA	TWA:2 mg/m3(0.5 ppm)	SKIN

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
CMRG : Chemical Manufacturer's Recommended Guidelines
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling
Sen: Sensitiser
Sk: Absorption through the skin may be a significant source of exposure.

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Full face shield.
Indirect vented goggles.

Select and use eye protection in accordance with AS/NZS 1336. Eye protection should comply with the performance specifications of AS/NZS 1337.

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Polymer laminate

if this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Select and use gloves according to AS/NZ 2161.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates, including oily mists

For questions about suitability for a specific application, consult with your respirator manufacturer.
Select and use respirators according to AS/NZS 1715. Respirators should comply with AS/NZS 1716 performance specifications. For information about respirators, call 3M on 1800 024 464.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Liquid.
Colour	Magenta
Odour	Acrylate
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	> 93.3 ºC
Flash point	> 93.3 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No data available.*
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	< 1,333.2 Pa [@ 20 ºC]
Vapor Density and/or Relative Vapor Density	> 1 [*Ref Std:*AIR=1]
Density	1.04 g/ml
Relative density	1.04 [*Ref Std:*WATER=1]
Water solubility	Negligible
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Viscosity/Kinematic Viscosity	*No data available.*
Volatile organic compounds (VOC)	*No data available.*
Percent volatile	*No data available.*
VOC less H2O & exempt solvents	*No data available.*

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3. Conditions to avoid
Light.

10.4. Possibility of hazardous reactions
Hazardous polymerisation may occur. (Upon depletion of inhibitor or exposure to heat)

10.5 Incompatible materials
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition
None known.	

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

Skin contact
Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching. May cause additional health effects (see below).

Eye contact
Corrosive (eye burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion
May be harmful if swallowed.
Gastrointestinal corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea; blood in the faeces and/or vomitus may also be seen. May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Kidney/Bladder effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination. Dermal effects: Signs/symptoms may include redness, itching, acne, or bumps on the skin.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
Tetrahydrofurfuryl acrylate	Ingestion	Rat	LD50 882 mg/kg
Isooctyl acrylate	Dermal	Rabbit	LD50 > 2,000 mg/kg
Isooctyl acrylate	Ingestion	Rat	LD50 > 5,000 mg/kg
Isobornyl acrylate	Dermal	Rabbit	LD50 > 5,000 mg/kg
Isobornyl acrylate	Ingestion	Rat	LD50 4,350 mg/kg
1,6-Hexanediol diacrylate	Dermal	Rabbit	LD50 3,636 mg/kg
1,6-Hexanediol diacrylate	Ingestion	Rat	LD50 > 5,000 mg/kg
Organic pigment	Dermal	Rat	LD50 > 2,000 mg/kg
Organic pigment	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 3.055 mg/l
Organic pigment	Ingestion	Rat	LD50 > 5,000 mg/kg
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
Benzophenone	Dermal	Rabbit	LD50 3,535 mg/kg
Benzophenone	Ingestion	Rat	LD50 1,900 mg/kg
Camphene	Dermal	Rabbit	LD50 > 2,500 mg/kg
Camphene	Ingestion	Rat	LD50 > 5,000 mg/kg
Tetrahydrofurfuryl alcohol	Dermal	Professional judgement	LD50 estimated to be 2,000 - 5,000 mg/kg
Tetrahydrofurfuryl alcohol	Inhalation-Vapour (4 hours)	Rat	LC50 > 3.1 mg/l
Tetrahydrofurfuryl alcohol	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Overall product	Professional judgement	Irritant
Tetrahydrofurfuryl acrylate	Rabbit	Corrosive
Isooctyl acrylate	In vitro data	No significant irritation
Isobornyl acrylate	Rabbit	Minimal irritation
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	similar compounds	Irritant
1,6-Hexanediol diacrylate	Rabbit	Irritant
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	similar compounds	Irritant
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Rabbit	No significant irritation
Benzophenone	Rabbit	No significant irritation
Camphene	Rabbit	No significant irritation
Tetrahydrofurfuryl alcohol	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Tetrahydrofurfuryl acrylate	Rabbit	Corrosive

Isooctyl acrylate	similar health hazards	Mild irritant
Isobornyl acrylate	Rabbit	Mild irritant
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	similar compounds	Severe irritant
1,6-Hexanediol diacrylate	Rabbit	Moderate irritant
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	similar compounds	Severe irritant
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Rabbit	No significant irritation
Benzophenone	Rabbit	Mild irritant
Camphene	Rabbit	Moderate irritant
Tetrahydrofurfuryl alcohol	Rabbit	Severe irritant

Skin Sensitisation

Name	Species	Value
Tetrahydrofurfuryl acrylate	Professional judgement	Sensitising
Isooctyl acrylate	Mouse	Sensitising
Isobornyl acrylate	Mouse	Sensitising
1,6-Hexanediol diacrylate	Guinea pig	Sensitising
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	similar compounds	Sensitising
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Mouse	Sensitising
Benzophenone	Guinea pig	Not classified
Tetrahydrofurfuryl alcohol	Mouse	Not classified

Respiratory Sensitisation

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Tetrahydrofurfuryl acrylate	In Vitro	Not mutagenic
Isooctyl acrylate	In Vitro	Some positive data exist, but the data are not sufficient for classification
Isobornyl acrylate	In Vitro	Not mutagenic
1,6-Hexanediol diacrylate	In Vitro	Some positive data exist, but the data are not sufficient for classification
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	In Vitro	Not mutagenic
Benzophenone	In Vitro	Not mutagenic
Benzophenone	In vivo	Not mutagenic
Camphene	In Vitro	Not mutagenic
Camphene	In vivo	Not mutagenic
Tetrahydrofurfuryl alcohol	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Isooctyl acrylate	Dermal	Mouse	Not carcinogenic
1,6-Hexanediol diacrylate	Dermal	Mouse	Not carcinogenic
Benzophenone	Dermal	Multiple animal species	Not carcinogenic
Benzophenone	Ingestion	Multiple animal species	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Tetrahydrofurfuryl acrylate	Ingestion	Toxic to female reproduction	Rat	NOAEL 50 mg/kg/day	premating into lactation
Tetrahydrofurfuryl acrylate	Dermal	Toxic to male reproduction	Rat	NOAEL 100 mg/kg/day	90 days
Tetrahydrofurfuryl acrylate	Ingestion	Toxic to male reproduction	Rat	NOAEL 35 mg/kg/day	90 days
Tetrahydrofurfuryl acrylate	Inhalation	Toxic to male reproduction	Rat	NOAEL 0.6 mg/l	90 days
Tetrahydrofurfuryl acrylate	Ingestion	Toxic to development	Rat	NOAEL 50 mg/kg/day	premating into lactation
Isooctyl acrylate	Dermal	Not classified for female reproduction	Rat	NOAEL 57 mg/kg/day	premating & during gestation
Isooctyl acrylate	Dermal	Not classified for male reproduction	Rat	NOAEL 57 mg/kg/day	premating & during gestation
Isooctyl acrylate	Dermal	Not classified for development	Rat	NOAEL 57 mg/kg/day	premating & during gestation
Isooctyl acrylate	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
Isobornyl acrylate	Ingestion	Not classified for male reproduction	Rat	NOAEL 500 mg/kg/day	31 days
Isobornyl acrylate	Ingestion	Not classified for female reproduction	Rat	NOAEL 100 mg/kg/day	premating into lactation
Isobornyl acrylate	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	premating into lactation
1,6-Hexanediol diacrylate	Not specified.	Not classified for development	Rat	NOAEL 750 mg/kg/day	during organogenesis
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Ingestion	Not classified for development	Rat	NOAEL 150 mg/kg/day	during gestation
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Ingestion	Toxic to female reproduction	Rat	NOAEL 200 mg/kg/day	premating into lactation
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Ingestion	Toxic to male reproduction	Rat	NOAEL 60 mg/kg/day	85 days
Benzophenone	Ingestion	Not classified for female reproduction	Rat	NOAEL 100 mg/kg/day	2 generation
Benzophenone	Ingestion	Not classified for male reproduction	Rat	NOAEL 80 mg/kg/day	2 generation
Benzophenone	Ingestion	Not classified for development	Rabbit	NOAEL 25 mg/kg/day	during gestation
Camphene	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
Tetrahydrofurfuryl alcohol	Ingestion	Toxic to female reproduction	Rat	NOAEL 50 mg/kg/day	premating into lactation
Tetrahydrofurfuryl alcohol	Dermal	Toxic to male reproduction	Rat	NOAEL 100 mg/kg/day	13 weeks
Tetrahydrofurfuryl alcohol	Ingestion	Toxic to male reproduction	Rat	NOAEL 150 mg/kg/day	47 days
Tetrahydrofurfuryl alcohol	Inhalation	Toxic to male reproduction	Rat	NOAEL 0.6 mg/l	90 days
Tetrahydrofurfuryl alcohol	Ingestion	Toxic to development	Rat	NOAEL 50 mg/kg/day	premating into lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Tetrahydrofurfuryl acrylate	Inhalation	respiratory irritation	May cause respiratory irritation	Human and animal	NOAEL Not available	
Isooctyl acrylate	Inhalation	respiratory irritation	Not classified	Human	NOAEL Not available	occupational exposure
Isooctyl acrylate	Ingestion	central nervous system depression	Not classified	Rat	NOAEL 5,000 mg/kg	
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
1,6-Hexanediol diacrylate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Camphene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Tetrahydrofurfuryl alcohol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Isooctyl acrylate	Dermal	heart | endocrine system | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 57 mg/kg/day	premating & during gestation
Isooctyl	Ingestion	endocrine	Not classified	Rat	NOAEL 600	90 days

acrylate		system | liver | kidney and/or bladder | heart | bone, teeth, nails, and/or hair | hematopoietic system | immune system | muscles | nervous system | eyes | respiratory system | vascular system			mg/kg/day	
Isobornyl acrylate	Ingestion	gastrointestinal tract | immune system | kidney and/or bladder | heart | endocrine system | hematopoietic system | liver | nervous system | respiratory system	Not classified	Rat	NOAEL 500 mg/kg/day	31 days
1,6-Hexanediol diacrylate	Dermal	skin	May cause damage to organs though prolonged or repeated exposure	Mouse	LOAEL 70 mg/kg/day	80 weeks
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Ingestion	skin | blood | liver | kidney and/or bladder | nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	90 days
Benzophenone	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 75 mg/kg/day	14 weeks
Benzophenone	Ingestion	heart | hematopoietic system | liver | immune system | endocrine system | bone, teeth, nails, and/or hair | nervous system | eyes | respiratory system	Not classified	Rat	NOAEL 850 mg/kg/day	14 weeks
Camphene	Ingestion	liver | kidney and/or bladder | hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Tetrahydrofurfuryl alcohol	Inhalation	nervous system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.2 mg/l	90 days
Tetrahydrofur	Inhalation	hematopoietic	Some positive	Rat	NOAEL 0.6	90 days

furyl alcohol		system	data exist, but the data are not sufficient for classification		mg/l	
Tetrahydrofur furyl alcohol	Inhalation	eyes	Not classified	Rat	NOAEL 2.1 mg/l	90 days
Tetrahydrofur furyl alcohol	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 69 mg/kg/day	91 days
Tetrahydrofur furyl alcohol	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 150 mg/kg/day	28 days
Tetrahydrofur furyl alcohol	Ingestion	endocrine system | kidney and/or bladder	Not classified	Rat	NOAEL 600 mg/kg/day	28 days
Tetrahydrofur furyl alcohol	Ingestion	liver | eyes	Not classified	Rat	NOAEL 781 mg/kg/day	91 days
Tetrahydrofur furyl alcohol	Ingestion	heart | nervous system	Not classified	Rat	NOAEL 600 mg/kg/day	28 days

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Exposure Levels
Refer Section **8.1 Control Parameters** of this Safety Data Sheet.

Interactive Effects
Not determined.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 1: Very toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 2: Toxic to aquatic life with long lasting effects.

No product test data available.

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
Isobornyl acrylate	5888-33-5	Green algae	Experimental	72 hours	EC50	1.98 mg/l
Isobornyl acrylate	5888-33-5	Zebra Fish	Experimental	96 hours	LC50	0.704 mg/l
Isobornyl acrylate	5888-33-5	Green algae	Experimental	72 hours	NOEC	0.405 mg/l
Isobornyl acrylate	5888-33-5	Water flea	Experimental	21 days	NOEC	0.092 mg/l
Isooctyl acrylate	29590-42-9	Green algae	Estimated	72 hours	EC50	0.535 mg/l
Isooctyl acrylate	29590-42-9	Fathead minnow	Experimental	96 hours	LC50	0.67 mg/l

Isooctyl acrylate	29590-42-9	Water flea	Experimental	48 hours	EC50	0.4 mg/l
Isooctyl acrylate	29590-42-9	Water flea	Experimental	21 days	NOEC	0.065 mg/l
Isooctyl acrylate	29590-42-9	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
Tetrahydrofurfuryl acrylate	2399-48-6	Activated sludge	Experimental	3 hours	EC50	263.7 mg/l
Tetrahydrofurfuryl acrylate	2399-48-6	Green algae	Experimental	72 hours	EC50	3.92 mg/l
Tetrahydrofurfuryl acrylate	2399-48-6	Water flea	Experimental	48 hours	EC50	37.7 mg/l
Tetrahydrofurfuryl acrylate	2399-48-6	Zebra Fish	Experimental	96 hours	LC50	7.32 mg/l
Tetrahydrofurfuryl acrylate	2399-48-6	Green algae	Experimental	72 hours	EC10	2.48 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Green algae	Experimental	72 hours	EC50	2.33 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Medaka	Experimental	96 hours	LC50	0.38 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Water flea	Experimental	48 hours	EC50	2.7 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Green algae	Experimental	72 hours	NOEC	0.9 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Medaka	Experimental	39 days	NOEC	0.072 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Water flea	Experimental	21 days	NOEC	0.14 mg/l
1,6-Hexanediol diacrylate	13048-33-4	Activated sludge	Experimental	30 minutes	EC50	270 mg/l
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	67906-98-3	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	72162-39-1	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Organic pigment	Trade Secret	Activated sludge	Analogous Compound	3 hours	EC50	>1,000 mg/l
Organic pigment	Trade Secret	Green algae	Analogous Compound	72 hours	EC50	>100 mg/l
Organic pigment	Trade Secret	Water flea	Analogous Compound	48 hours	EC50	>100 mg/l
Organic pigment	Trade Secret	Zebra Fish	Analogous Compound	96 hours	LC50	>100 mg/l
Organic pigment	Trade Secret	Green algae	Analogous Compound	72 hours	NOEC	100 mg/l
Organic pigment	Trade Secret	Water flea	Analogous Compound	21 days	NOEC	100 mg/l
Organic pigment	Trade Secret	Zebra Fish	Analogous Compound	28 days	NOEC	100 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Activated sludge	Experimental	3 hours	EC20	>1,000 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Common Carp	Experimental	96 hours	LC50	1.4 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Green algae	Experimental	72 hours	EC50	>2.01 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Water flea	Experimental	48 hours	EC50	3.53 mg/l

Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Green algae	Experimental	72 hours	EC10	1.56 mg/l
Benzophenone	119-61-9	Fathead minnow	Experimental	96 hours	LC50	10.89 mg/l
Benzophenone	119-61-9	Green algae	Experimental	72 hours	EC50	3.5 mg/l
Benzophenone	119-61-9	Water flea	Experimental	48 hours	EC50	6.8 mg/l
Benzophenone	119-61-9	Fathead minnow	Experimental	7 days	NOEC	2.1 mg/l
Benzophenone	119-61-9	Green algae	Experimental	72 hours	NOEC	1 mg/l
Benzophenone	119-61-9	Water flea	Experimental	21 days	NOEC	0.2 mg/l
Camphene	79-92-5	Activated sludge	Experimental	3 hours	EC10	490.3 mg/l
Camphene	79-92-5	Green algae	Experimental	72 hours	EC50	1.75 mg/l
Camphene	79-92-5	Sheepshead Minnow	Experimental	96 hours	LC50	1.9 mg/l
Camphene	79-92-5	Water flea	Experimental	48 hours	EC50	0.72 mg/l
Camphene	79-92-5	Zebra Fish	Experimental	96 hours	LC50	0.72 mg/l
Camphene	79-92-5	Green algae	Experimental	72 hours	NOEC	0.07 mg/l
Tetrahydrofurfuryl alcohol	97-99-4	Green algae	Experimental	72 hours	EC50	>100 mg/l
Tetrahydrofurfuryl alcohol	97-99-4	Medaka	Experimental	96 hours	LC50	>100 mg/l
Tetrahydrofurfuryl alcohol	97-99-4	Water flea	Experimental	48 hours	EC50	>100 mg/l
Tetrahydrofurfuryl alcohol	97-99-4	Green algae	Experimental	72 hours	NOEC	>100 mg/l
Tetrahydrofurfuryl alcohol	97-99-4	Water flea	Experimental	21 days	NOEC	>100 mg/l

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Isobornyl acrylate	5888-33-5	Experimental Biodegradation	28 days	CO2 evolution	57 %CO2 evolution/THCO2 evolution	OECD 310 CO2 Headspace
Isooctyl acrylate	29590-42-9	Experimental Biodegradation	28 days	BOD	93 %BOD/ThOD	OECD 301D - Closed bottle test
Tetrahydrofurfuryl acrylate	2399-48-6	Experimental Biodegradation	28 days	BOD	77.7 %BOD/ThOD	OECD 301F - Manometric respirometry
Tetrahydrofurfuryl acrylate	2399-48-6	Experimental Bioconcentration		Log Kow	0.81	
1,6-Hexanediol diacrylate	13048-33-4	Experimental Biodegradation	28 days	CO2 evolution	60-70 %CO2 evolution/THCO2 evolution	ISO 14593 Inorg C Headspace
1,6-Hexanediol diacrylate	13048-33-4	Estimated Photolysis		Photolytic half-life (in air)	1 days (t 1/2)	Episuite™
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	67906-98-3	Data not available-insufficient	N/A	N/A	N/A	N/A
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	72162-39-1	Data not available-insufficient	N/A	N/A	N/A	N/A
Organic pigment	Trade Secret	Analogous Compound Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301F - Manometric respirometry
Diphenyl(2,4,6-trimethylbenzoyl)p	75980-60-8	Experimental Biodegradation	28 days	BOD	≤10 %BOD/ThOD	OECD 301F - Manometric respirometry

hosphine oxide						
Benzophenone	119-61-9	Experimental Biodegradation	28 days	BOD	66-84 %BOD/ThOD	OECD 301F - Manometric respirometry
Camphene	79-92-5	Experimental Biodegradation	28 days	BOD	2 %BOD/ThOD	OECD 301C - MITI test (I)
Camphene	79-92-5	Experimental Photolysis		Photolytic half-life (in air)	7.2 hours (t 1/2)	
Tetrahydrofurfuryl alcohol	97-99-4	Experimental Biodegradation	28 days	BOD	92 %BOD/ThOD	OECD 301C - MITI test (I)
Tetrahydrofurfuryl alcohol	97-99-4	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	OECD 111 Hydrolysis func of pH

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Isobornyl acrylate	5888-33-5	Analogous Compound BCF - Fish	56 hours	Bioaccumulation factor	37	OECD305-Bioconcentration
Isooctyl acrylate	29590-42-9	Estimated Bioconcentration		Bioaccumulation factor	120-940	Catalogic™
Isooctyl acrylate	29590-42-9	Experimental Bioconcentration		Log Kow	4.6	
1,6-Hexanediol diacrylate	13048-33-4	Experimental Bioconcentration		Log Kow	2.81	
2-Propenoic acid, 1,6-hexanediyl ester, polymer with 2-aminoethanol	67906-98-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2-Propenoic acid, 2-hydroxyethyl ester, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-oxepanone and 2,2'-oxybis[ethanol]	72162-39-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Organic pigment	Trade Secret	Estimated Bioconcentration		Log Kow	-0.52	
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	Experimental BCF - Fish	56 days	Bioaccumulation factor	≤40	
Benzophenone	119-61-9	Experimental BCF - Fish	56 days	Bioaccumulation factor	<12	
Camphene	79-92-5	Experimental BCF - Fish	56 days	Bioaccumulation factor	606-1290	OECD305-Bioconcentration
Tetrahydrofurfuryl alcohol	97-99-4	Experimental Bioconcentration		Log Kow	-0.11	OECD 107 log Kow shke flsk mtd

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes.

SECTION 14: Transport Information

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (ISOBORNYL ACRYLATE, ISOOCTYL ACRYLATE)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Special Instructions: Australian Dangerous Goods Code: Not subject to this code as per Special Provision AU01
Hazchem Code: Not applicable
IERG: 47

International Air Transport Association (IATA) - Air Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (ISOBORNYL ACRYLATE, ISOOCTYL ACRYLATE)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Special Instructions: Not restricted, as per Special Provision A197, environmentally hazardous substance exception.

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: UN3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (ISOBORNYL ACRYLATE, ISOOCTYL ACRYLATE)
Class/Division: 9
Sub Risk: Not applicable.
Packing Group: III
Marine Pollutant: Not applicable.
Special Instructions: Not restricted, as per IMDG code 2.10.2.7, marine pollutant exception.

SECTION 15: Regulatory information

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

Australian Inventory Status:
An ingredient(s) in this product is being introduced under a Certificate (Standard/Limited/Polymer of Low Concern) granted under Section 39 of the Industrial Chemicals (Notification and Assessment) Act 1989 as amended.

Poison Schedule: This product is intended for Industrial or Professional Use only and therefore is not packaged and labelled in accordance with the requirements of the Standard for the Uniform Scheduling of Medicines and Poisons.

SECTION 16: Other information

Revision information:
Complete document review.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Safety Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.
Greenguard ® is a United States based program. The ‘Low VOC’ reference related to United States Federal and State

regulations exemptions for some solvents.

3M Australia SDSs are available at www.3m.com.au