



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™ 8964UV Yellow Piezo InkJet Ink

Product Identification Numbers

75-0302-6690-4

1.2. Recommended use and restrictions on use

Recommended use

Ink, For use with Durst 163TS and 163TS-HS, Professional printing ink for use in traffic safety systems.

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 1A.
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.
H350	May cause 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.
P2801	Wear protective gloves, eye/face protection, and respiratory 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.
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Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.
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2.3. Other assigned/identified product hazards

- May cause chemical gastrointestinal burns. A similar mixture has been tested for skin corrosion/irritation and the test

results are reflected in the assigned classification.

2.4. Other hazards which do not result in classification

May be harmful if swallowed.

May be harmful if inhaled.

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
Pigment affinic groups	Trade Secret	10 - 30
1,6-Hexanediol diacrylate	13048-33-4	1 - 10
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	1 - 10
Benzophenone	119-61-9	1 - 10
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	68511-62-6	1 - 10
High molecular weight block copolymer	Trade Secret	1 - 10
Melamine	108-78-1	1 - 5
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	1 - 5

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

<u>Substance</u>	<u>Condition</u>
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.

Hazchem Code: •3Z

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
Melamine	108-78-1	AIHA	TWA(inhalable particulates):3 mg/m ³	
Benzophenone	119-61-9	AIHA	TWA: 0.5 mg/m ³	
1,6-Hexanediol diacrylate	13048-33-4	AIHA	TWA:1 mg/m ³ (0.11 ppm)	Dermal Sensitizer
Tetrahydrofurfuryl acrylate	2399-48-6	Manufacturer determined	TWA:0.1 ppm(0.64 mg/m ³);STEL:0.3 ppm(1.91 mg/m ³)	Dermal Sensitizer
Isooctyl acrylate	29590-42-9	AIHA	TWA:37.5 mg/m ³ (5 ppm)	

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	Yellow
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 °C
Flash point	> 93.3 °C [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 °C]
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 H ₂ O & 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

May be harmful if inhaled. 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:**

Immunological effects: Signs/symptoms may include alterations in the number of circulating immune cells, allergic skin and/or respiratory reaction, and changes in immune function. Gastrointestinal Effects: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. 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	Inhalation-Dust/Mist(4 hr)		No data available; calculated ATE >5 - =12.5 mg/l
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
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
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.222 mg/l
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Ingestion	Rat	LD50 > 5,000 mg/kg
Melamine	Dermal	Rabbit	LD50 > 1,000 mg/kg
Melamine	Ingestion	Rat	LD50 3,161 mg/kg
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	Dermal	Rat	LD50 > 2,000 mg/kg
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	Ingestion	Rat	LD50 >500, <2,000 mg/kg
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 2.8 mg/l

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
1,6-Hexanediol diacrylate	Rabbit	Irritant
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Rabbit	No significant irritation
Benzophenone	Rabbit	No significant irritation
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Rabbit	No significant irritation
Melamine	Guinea pig	No significant irritation
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	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
1,6-Hexanediol diacrylate	Rabbit	Moderate irritant
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Rabbit	No significant irritation
Benzophenone	Rabbit	Mild irritant
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Rabbit	No significant irritation
Melamine	Rabbit	No significant irritation
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	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
Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	Mouse	Sensitising
Benzophenone	Guinea pig	Not classified
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	similar compounds	Sensitising
Melamine	Guinea pig	Not classified
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	Guinea pig	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
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetriene complexes	In Vitro	Not mutagenic
Melamine	In Vitro	Not mutagenic
Melamine	In vivo	Not mutagenic
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	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.
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetriene complexes	Not specified.	similar compounds	Carcinogenic.
Melamine	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	prematuring 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
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during gestation
Melamine	Ingestion	Not classified for development	Rat	NOAEL 1,060 mg/kg/day	during organogenesis

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	
1,6-Hexanediol diacrylate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	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	Not classified	Rat	NOAEL 57 mg/kg/day	prematuring & during gestation

		immune system nervous system kidney and/or bladder respiratory system				
Isooctyl acrylate	Ingestion	endocrine 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	Not classified	Rat	NOAEL 600 mg/kg/day	90 days
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- trimethylbenz oyl)phosphine oxide	Ingestion	skin blood liver kidney and/or bladder nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	90 days
Benzophenon e	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 75 mg/kg/day	14 weeks
Benzophenon e	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
Nickel, 5,5'- azobis-	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

2,4,6(1H,3H,5H)-pyrimidinetrione complexes						
Melamine	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 63 mg/kg/day	13 weeks
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	Ingestion	gastrointestinal tract immune system	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 15 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
Diphenyl(2,4,6-trimethylbenzoyl)p hosphine oxide	75980-60-8	Activated sludge	Experimental	3 hours	EC20	>1,000 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)p hosphine oxide	75980-60-8	Common Carp	Experimental	96 hours	LC50	1.4 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)p hosphine oxide	75980-60-8	Green algae	Experimental	72 hours	EC50	>2.01 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)p hosphine oxide	75980-60-8	Water flea	Experimental	48 hours	EC50	3.53 mg/l
Diphenyl(2,4,6-trimethylbenzoyl)p hosphine 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
Nickel, 5,5'-azobis- 2,4,6(1H,3H,5H)- pyrimidinetrione complexes	68511-62-6	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Nickel, 5,5'-azobis- 2,4,6(1H,3H,5H)- pyrimidinetrione complexes	68511-62-6	Water flea	Analogous Compound	48 hours	No tox obs at lmt of water sol	>100 mg/l
Nickel, 5,5'-azobis- 2,4,6(1H,3H,5H)- pyrimidinetrione complexes	68511-62-6	Zebra Fish	Endpoint not reached	96 hours	LC50	>100 mg/l
Nickel, 5,5'-azobis- 2,4,6(1H,3H,5H)- pyrimidinetrione complexes	68511-62-6	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Nickel, 5,5'-azobis- 2,4,6(1H,3H,5H)- pyrimidinetrione	68511-62-6	Water flea	Analogous Compound	21 days	No tox obs at lmt of water sol	>100 mg/l

complexes						
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	68511-62-6	Activated sludge	Analogous Compound	3 hours	EC50	5,180 mg/l
Melamine	108-78-1	Bacteria	Experimental	30 minutes	EC50	>10,000 mg/l
Melamine	108-78-1	Green algae	Experimental	96 hours	EC50	325 mg/l
Melamine	108-78-1	Guppy	Experimental	96 hours	LC50	>3,000 mg/l
Melamine	108-78-1	Water flea	Experimental	48 hours	EC50	48 mg/l
Melamine	108-78-1	Fathead minnow	Experimental	36 days	NOEC	>=5.1 mg/l
Melamine	108-78-1	Green algae	Experimental	96 hours	NOEC	98 mg/l
Melamine	108-78-1	Water flea	Experimental	21 days	NOEC	>=11 mg/l
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Green algae	Experimental	72 hours	EC50	>0.15 mg/l
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Rainbow trout	Experimental	96 hours	LC50	>1.5 mg/l
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Water flea	Experimental	48 hours	EC50	0.64 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™
Diphenyl(2,4,6-trimethylbenzoyl)p phosphine oxide	75980-60-8	Experimental Biodegradation	28 days	BOD	≤10 %BOD/ThOD	OECD 301F - Manometric respirometry
Benzophenone	119-61-9	Experimental Biodegradation	28 days	BOD	66-84 %BOD/ThOD	OECD 301F - Manometric respirometry
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	68511-62-6	Analogous Compound Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301F - Manometric respirometry
Melamine	108-78-1	Experimental Biodegradation	14 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Experimental Biodegradation	29 days	CO2 evolution	0 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2

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	
Diphenyl(2,4,6-trimethylbenzoyl)p 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	
Nickel, 5,5'-azobis-2,4,6(1H,3H,5H)-pyrimidinetrione complexes	68511-62-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Melamine	108-78-1	Experimental BCF - Fish	42 days	Bioaccumulation factor	<3.8	OECD305-Bioconcentration
n,n'-Bis(2,2,6,6-tetramethyl-4-piperidiny)-1,6-hexanediamine, polymers w/morpholine-2,4,6-trichloro-1,3,5-triazine reaction products, methylated	193098-40-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

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.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. If no other disposal options are available, waste product that has been completely cured or polymerized may be placed in a landfill properly designed for industrial waste.

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: Not restricted, environmentally hazardous substance exception.

Hazchem Code: •Z

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: ISOBORNYL ACRYLATE, ISOOCTYL ACRYLATE

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