WINDSHIELD REPAIR RESIN, 5 x 0.2 mL

Version	Revision Date:	SDS Number:	Date of last issue: 05/30/2023
5.0	12/06/2023	10772915-00008	Date of first issue: 03/18/2013

SECTION 1. IDENTIFICATION

Product name	:	WINDSHIELD REPAIR RESIN, 5 x 0.2 mL
Product code	:	891.634420
Other means of identification	:	No data available

Manufacturer or supplier's details

Company name of supplier	:	Würth Canada Limited
Address	:	345 Hanlon Creek Blvd GUELPH, ON N1C 0A1
Telephone	:	+1 (905) 564 6225
Telefax	:	+1 (905) 564 3671
Emergency telephone	:	Emergencies involving a spill, fire, explosion or exposure: CHEMTREC (24/7): 1-800-424-9300 Transport related emergencies: CANUTEC (24/7): 1-613-996-6666 or * 666 (cell) Urgences impliquant un déversement, incendie, explosion ou exposition: CHEMTREC (24/7): 1-800-424-9300 Urgences liées au transport: CANUTEC (24/7): 1-613-996-6666 ou * 666 (cellulaire)
E-mail address	:	prodsafe@wurth.ca

Recommended use of the chemical and restrictions on use

Recommended use	:	Adhesives and/or sealants Automotive
Restrictions on use	:	Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Acute toxicity (Oral)	:	Category 4
Skin corrosion	:	Category 1
Serious eye damage	:	Category 1
Skin sensitization	:	Sub-category 1A

Reproductive toxicity	:	Category 1B
Specific target organ toxicity - single exposure	:	Category 3
Specific target organ toxicity - single exposure	:	Category 2 (Central nervous system, optic nerve)

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H360Df May damage the unborn child. Suspected of damaging fertility.
H371 May cause damage to organs (Central nervous system, optic nerve).

Supplemental Hazard Statements : In contact with water releases gases which are toxic if inhaled.

Precautionary Statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER.
P303 + P361 + P353 + P310 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present

and easy to do. Continue rinsing. Immediately call a POISON CENTER.
P308 + P311 IF exposed or concerned: Call a doctor.
P333 + P313 If skin irritation or rash occurs: Get medical attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
Tetrahydrofurfuryl acrylate	2-Propenoicacid,tetrahydrofurylester	2399-48-6	>= 30 - < 60 *
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	2-Propenoic acid, (1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, rel-	5888-33-5	>= 30 - < 60 *
2-Hydroxyethyl methacrylate	2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester	868-77-9	>= 10 - < 30 *
Methacryloxypropyl trimethoxysilane	2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester	2530-85-0	>= 5 - < 10 *
Maleic acid	2-Butenedioic acid (2Z)-	110-16-7	>= 5 - < 10 *
Acrylic acid	2-Propenoic acid	79-10-7	>= 1 - < 5 *

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.
If inhaled	:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention immediately.
If swallowed	:	If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control center immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. May damage the unborn child. Suspected of damaging fertility. May cause damage to organs. In contact with water releases gases which are toxic if inhaled. Causes severe burns. Causes digestive tract burns.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam

		Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Silicon oxides
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation	:	If sufficient ventilation is unavailable, use with local exhaust ventilation.
Advice on safe handling	:	Do not get on skin or clothing. Do not breathe mist or vapors. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Keep container tightly closed. Keep away from water. Protect from moisture. Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitizers. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labeled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.
Materials to avoid	:	Do not store with the following product types: Strong oxidizing agents Self-reactive substances and mixtures Organic peroxides Explosives Gases
Recommended storage temperature	:	10 - 30 °C
Storage period	:	24 Months
Further information on storage stability	:	Keep away from direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Acrylic acid	79-10-7	TWA	2 ppm	CA AB OEL

			5.9 mg/m³	
		TWA	2 ppm	CA BC OEL
		TWAEV	2 ppm 5.9 mg/m³	CA QC OEL
		TWA	2 ppm	ACGIH

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methanol	67-56-1	TWA	200 ppm 262 mg/m³	CA AB OEL
		STEL	250 ppm 328 mg/m³	CA AB OEL
		TWA	200 ppm	CA BC OEL
		STEL	250 ppm	CA BC OEL
		STEV	250 ppm 328 mg/m³	CA QC OEL
		TWAEV	200 ppm 262 mg/m³	CA QC OEL
		TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH

Engineering measures : Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Self-contained breathing apparatus

Hand protection
- Material : Nitrile rubber
- Break through time : > 480 min
- Glove thickness : 0.4 mm
- Wearing time : < 60 min

Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.

If splashes are likely to occur, wear:
Face-shield

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	colorless
Odor	:	characteristic
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	93.3 - < 100 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Ignitable (see flash point)
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available

Vapor pressure	:	No data available
Relative vapor density	:	No data available
Density	:	1.1 g/cm³
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Vapors may form explosive mixture with air. Can react with strong oxidizing agents. Hazardous decomposition products will be formed upon contact with water or humid air.
Conditions to avoid	:	Exposure to moisture.
Incompatible materials	:	Oxidizing agents Water

Hazardous decomposition products

Contact with water or humid air	:	Methanol

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed.
In contact with water releases gases which are toxic if inhaled.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 888.27 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 20 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 2,000 mg/kg Method: Calculation method

Components:

Tetrahydrofurfuryl acrylate:

Acute oral toxicity	:	LD50 (Rat): 928 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	Assessment: Corrosive to the respiratory tract.

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Acute oral toxicity	:	LD50 (Rat): 4,350 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 3,000 mg/kg

2-Hydroxyethyl methacrylate:

Acute oral toxicity	:	LD50 (Rat): 5,564 mg/kg
Acute dermal toxicity	:	LD50 (Rabbit): > 5,000 mg/kg

Methacryloxypropyl trimethoxysilane:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 423 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat): > 2.28 mg/l Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Maleic acid:

Acute oral toxicity : LD50 (Rat): > 300 - 2,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): 1,560 mg/kg

Acrylic acid:

Acute oral toxicity : LD50 (Rat): 357 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes severe burns.

Components:

Tetrahydrofurfuryl acrylate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Corrosive after 1 to 4 hours of exposure

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Result : Skin irritation
Remarks : Based on national or regional regulation.

2-Hydroxyethyl methacrylate:

Result : Skin irritation
Remarks : Based on national or regional regulation.

Methacryloxypropyl trimethoxysilane:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Maleic acid:

Species	:	in vitro membrane barrier
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 3 minutes to 1 hour of exposure

Acrylic acid:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 3 minutes or less of exposure

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Tetrahydrofurfuryl acrylate:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Result	:	Irritation to eyes, reversing within 21 days
Remarks	:	Based on national or regional regulation.

2-Hydroxyethyl methacrylate:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days

Methacryloxypropyl trimethoxysilane:

Species	:	Rabbit
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Maleic acid:

Result	:	Irreversible effects on the eye
Remarks	:	Based on skin corrosivity.

Acrylic acid:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Components:

Tetrahydrofurfuryl acrylate:

Routes of exposure	:	Skin contact
Species	:	Humans
Result	:	positive
Assessment	:	Probability or evidence of low to moderate skin sensitization rate in humans

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Test Type	:	Human repeat insult patch test (HRIPT)
Routes of exposure	:	Skin contact
Species	:	Humans
Result	:	positive
Assessment	:	Probability or evidence of high skin sensitization rate in humans

2-Hydroxyethyl methacrylate:

Assessment	:	Probability or evidence of skin sensitization in humans
Remarks	:	Based on national or regional regulation.

Methacryloxypropyl trimethoxysilane:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

Maleic acid:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	positive
Assessment	:	Probability or evidence of skin sensitization in humans

Acrylic acid:

Test Type	:	Freund's complete adjuvant test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Tetrahydrofurfuryl acrylate:

Genotoxicity in vitro : Test Type: in vitro micronucleus test
Method: OECD Test Guideline 487
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

2-Hydroxyethyl methacrylate:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative

Methacryloxypropyl trimethoxysilane:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: positive

Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse

Application Route: Intraperitoneal injection
Result: negative

Maleic acid:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Acrylic acid:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: Ingestion
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

2-Hydroxyethyl methacrylate:

Species	:	Rat
Application Route	:	Inhalation
Exposure time	:	102 weeks
Method	:	OECD Test Guideline 451
Result	:	negative
Remarks	:	Based on data from similar materials

Maleic acid:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	2 Years
Result	:	negative
Remarks	:	Based on data from similar materials

Acrylic acid:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	21 Months
Result	:	negative

Reproductive toxicity

May damage the unborn child. Suspected of damaging fertility.

Components:

Tetrahydrofurfuryl acrylate:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: positive
Effects on fetal development	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: positive
Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on development, based on animal experiments., Some evidence of adverse effects on sexual function and fertility, based on animal experiments.

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on fetal development	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative

2-Hydroxyethyl methacrylate:

Effects on fertility	:	Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rabbit Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative Remarks: Based on data from similar materials

Methacryloxypropyl trimethoxysilane:

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Maleic acid:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Acrylic acid:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 414
Result: negative

STOT-single exposure

May cause respiratory irritation.
May cause damage to organs (Central nervous system, optic nerve).

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Assessment : May cause respiratory irritation.
Remarks : Based on national or regional regulation.

Methacryloxypropyl trimethoxysilane:

Routes of exposure : Ingestion
Target Organs : Central nervous system, optic nerve
Assessment : May cause damage to organs.
Remarks : Based on data from similar materials

Maleic acid:

Assessment : May cause respiratory irritation.
Remarks : Based on national or regional regulation.

Acrylic acid:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

Not classified based on available information.

Components:

Tetrahydrofurfuryl acrylate:

Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

Tetrahydrofurfuryl acrylate:

Species	:	Rat
NOAEL	:	35 mg/kg
LOAEL	:	84 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 Days

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Species	:	Rat
NOAEL	:	100 mg/kg
Application Route	:	Ingestion
Exposure time	:	2 Weeks
Method	:	OECD Test Guideline 422

2-Hydroxyethyl methacrylate:

Species	:	Rat
NOAEL	:	100 mg/kg
Application Route	:	Ingestion
Exposure time	:	21 Days
Method	:	OECD Test Guideline 422

Acrylic acid:

Species	:	Rat
NOAEL	:	40 mg/kg
LOAEL	:	100 mg/kg
Application Route	:	Ingestion
Exposure time	:	12 Months

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Tetrahydrofurfuryl acrylate:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 7.32 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 37.7 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.92 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 EC10 (Pseudokirchneriella subcapitata (green algae)): 2.48 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50: 263.7 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 0.704 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 1.98 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 0.405 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia): 0.092 mg/l Exposure time: 21 d Method: OECD Test Guideline 211

2-Hydroxyethyl methacrylate:

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 380 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 836 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Selenastrum capricornutum (green algae)): 400 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 24.1 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	:	EC0: > 3,000 mg/l Exposure time: 16 h

Methacryloxypropyl trimethoxysilane:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): > 100 mg/l Exposure time: 96 h Method: Directive 67/548/EEC, Annex V, C.1.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: Directive 67/548/EEC, Annex V, C.2.
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3. NOEC (Desmodesmus subspicatus (green algae)): 100 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3.
Toxicity to microorganisms	:	NOEC: 1,000 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

Maleic acid:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): > 10 - 100 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 42.81 mg/l Exposure time: 48 h Test substance: Neutralized product Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 74.35 mg/l Exposure time: 72 h Test substance: Neutralized product Method: OECD Test Guideline 201 EC10 (Pseudokirchneriella subcapitata (green algae)): 11.8 mg/l Exposure time: 72 h Test substance: Neutralized product Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): > 1 mg/l Exposure time: 21 d Remarks: Based on data from similar materials
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): 44.6 mg/l Exposure time: 18 h Test substance: Neutralized product Method: DIN 38 412 Part 8

Acrylic acid:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 27 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 95 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Scenedesmus subspicatus): 0.205 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3. EC10 (Scenedesmus subspicatus): 0.031 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3.
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 3.8 mg/l Exposure time: 21 d
Toxicity to microorganisms	:	NOEC: 100 mg/l Exposure time: 30 min Method: ISO 8192

Persistence and degradability

Components:

Tetrahydrofurfuryl acrylate:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 77.7 % Exposure time: 28 d Method: OECD Test Guideline 301F

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 51 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

2-Hydroxyethyl methacrylate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 92 %
Exposure time: 14 d
Method: OECD Test Guideline 301C

Methacryloxypropyl trimethoxysilane:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 74 %
Exposure time: 28 d
Method: Regulation (EC) No. 440/2008, Annex, C.4-A

Maleic acid:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 97 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Acrylic acid:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 68 %
Exposure time: 14 d
Method: OECD Test Guideline 301

Bioaccumulative potential

Components:

Tetrahydrofurfuryl acrylate:

Partition coefficient: n-octanol/water : log Pow: 0.81

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate:

Bioaccumulation : Species: Zebrafish
Bioconcentration factor (BCF): 37
Method: OECD Test Guideline 305
Remarks: Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 4.52

2-Hydroxyethyl methacrylate:

Partition coefficient: n-octanol/water : log Pow: 0.42

Methacryloxypropyl trimethoxysilane:

Partition coefficient: n-octanol/water : Pow: 2.1

Maleic acid:

Partition coefficient: n-octanol/water : log Pow: -1.3

Acrylic acid:

Partition coefficient: n-octanol/water : log Pow: 0.46

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Do not dispose of waste into sewer.

Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1760
Proper shipping name	:	CORROSIVE LIQUID, N.O.S. (Acrylic acid, Maleic acid)
Class	:	8
Packing group	:	II
Labels	:	8
Environmentally hazardous	:	yes

IATA-DGR

UN/ID No.	:	UN 1760
Proper shipping name	:	Corrosive liquid, n.o.s.

(Acrylic acid, Maleic acid)

Class	:	8
Packing group	:	II
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG-Code

UN number	:	UN 1760
Proper shipping name	:	CORROSIVE LIQUID, N.O.S. (Acrylic acid, Maleic acid, Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate)
Class	:	8
Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

TDG

UN number	:	UN 1760
Proper shipping name	:	CORROSIVE LIQUID, N.O.S. (Acrylic acid, Maleic acid)
Class	:	8
Packing group	:	II
Labels	:	8
ERG Code	:	154
Marine pollutant	:	yes(Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate, Acrylic acid)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Volatile organic compounds (VOC) content

CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999 - Guidelines for VOC in Consumer Products
VOC content: < 1 %

The ingredients of this product are reported in the following inventories:

NDSL	:	This product contains one or several components listed in the Canadian NDSL.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA AB OEL / STEL	:	15-minute occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA BC OEL / STEL	:	short-term exposure limit
CA QC OEL / TWAEV	:	Time-weighted average exposure value
CA QC OEL / STEV	:	Short-term exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

Data Sheet cy, http://echa.europa.eu/

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Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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