SAFETY DATA SHEET

Classified in accordance 29 CFR 1910.1200

1. Identification

Product identifier: ARISTA UV U WHITE INK

Recommended restrictions

Recommended use: Printing ink
Restrictions on use: Reserved for industrial and professional use.

Manufactured for:

Distributor

LTD "ARISTA INK TECHNOLOGIES"
Aglonas 11-11
LV-1057
Riga
Latvia

Telephone: +371 22334368
Contact Person:
E-mail: office@arista.lv

Emergency telephone number:

Transport Emergency	Non-transportation
Chemtrec: +1 800 4249300 International: +32 3 4442111	Health Emergency Phone: +1 303 6235716

2. Hazard(s) identification

Hazard Classification

Health Hazards

Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Skin sensitizer	Category 1
Toxic to reproduction	Category 1B
Specific Target Organ Toxicity - Single Exposure	Category 3[1.]

Target Organs

1. Respiratory tract irritation.

Environmental Hazards

Acute hazards to the aquatic environment	Category 2
Chronic hazards to the aquatic environment	Category 2

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement:
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
May cause respiratory irritation.
Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Use only outdoors or in a well-ventilated area. Avoid release to the environment.

Response: IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of water/… If skin irritation or rash occurs: Get medical advice/attention. Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see on this label). Wash contaminated clothing before reuse. Collect spillage.

Storage: Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	5888-33-5	10 - <20%
Titanium dioxide	13463-67-7	10 - <20%
2-(2-Vinyloxyethoxy) ethyl acrylate	86273-46-3	10 - <20%
Phenoxyethylacrylate	48145-04-6	10 - <20%
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	75980-60-8	5 - <10%
Tetrahydrofurfuryl acrylate	2399-48-6	5 - <10%
2-Propenoic acid ,1-6-hexanediyl ester, polymer with 2-aminoethanol	67906-98-3	5 - <10%
Isodecyl acrylate	1330-61-6	5 - <10%
Hexamethylene diacrylate	13048-33-4	1 - <5%
Ethoxylated phenyl acrylate	56641-05-5	1 - <2.5%
Oxybis(methyl-2,1-ethanediyl) diacrylate	57472-68-1	0.1 - <1%
Tetrahydrofurfuryl alcohol	97-99-4	0.1 - <0.3%
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	128-37-0	0 - <0.1%
Heptane	142-82-5	0 - <0.1%
Phenol, 4-methoxy-	150-76-5	0 - <0.1%
Tris(N-hydroxy-N-nitrosophenylaminato-O,O')aluminium	15305-07-4	0 - <0.1%
Hydroquinone	123-31-9	0.01 - <0.1%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Description of necessary first-aid measures

General information: Get medical attention if symptoms occur.

Inhalation: Move into fresh air and keep at rest. Get medical attention immediately. Show this safety data sheet to the doctor in attendance.

Skin Contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Eye contact: Flush thoroughly with water for at least 15 minutes. Get medical assistance.

Ingestion: Rinse mouth with plenty of water. Call a physician immediately. Show this safety data sheet to the doctor in attendance.

Personal Protection for First-aid Responders: CAUTION! First aid personnel must be aware of own risk during rescue! See Section 8 of the SDS for Personal Protective Equipment.

Most important symptoms/effects, acute and delayed

Symptoms: See section 11 of the SDS for additional information on health hazards.

Hazards:	See section 11 of the SDS for additional information on health hazards.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Extinguish with foam, carbon dioxide, dry powder or water fog.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep unauthorized personnel away.
For emergency responders:	Warn everybody of potential hazards and evacuate if necessary. Use personal protective equipment.
For non-emergency personnel:	Use personal protective equipment.
Methods and material for containment and cleaning up:	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal.
Environmental Precautions:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water sources or sewer.

7. Handling and storage

Handling

Technical measures (e.g. Local and general ventilation): Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Emergency showers and eye wash stations should be available.

Safe handling advice: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Avoid contact with skin. Wash hands thoroughly after handling. Avoid contact with eyes, skin, and clothing.

Contact avoidance measures: Contact with incompatible materials.

Hygiene measures: Employees should wash their hands and face before eating, drinking, or using tobacco products. Keep away from foodstuffs, drinks and tobacco.

Storage

Safe storage conditions: Store locked up.

Safe packaging materials: Keep in original container.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values		Source
Titanium dioxide	TWA	10 mg/m3		US. ACGIH Threshold Limit Values, as amended (03 2014)
Titanium dioxide - Total dust.	PEL	15 mg/m3		US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended (02 2006)
	TWA	10 mg/m3		US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol - Inhalable fraction and vapor.	TWA	2 mg/m3		US. ACGIH Threshold Limit Values, as amended (03 2014)
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	REL	10 mg/m3		US. NIOSH: Pocket Guide to Chemical Hazards, as amended (2010)
	TWA	10 mg/m3		US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)
Heptane	TWA	400 ppm		US. ACGIH Threshold Limit Values, as amended (03 2014)
	STEL	500 ppm		US. ACGIH Threshold Limit Values, as amended (03 2014)
	REL	85 ppm	350 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended (2010)
	Ceil_Time	440 ppm	1,800 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended (2010)
	PEL	500 ppm	2,000 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended (02 2006)
	STEL	500 ppm	2,000 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)
	TWA	400 ppm	1,600 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)
Phenol, 4-methoxy-	TWA	5 mg/m3		US. ACGIH Threshold Limit Values, as amended (03 2014)
	REL	5 mg/m3		US. NIOSH: Pocket Guide to Chemical Hazards, as amended (2010)
	TWA	5 mg/m3		US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)
Tris(N-hydroxy-N-nitrosophenylaminato-O,O')aluminium - Respirable	TWA	1 mg/m3		US. ACGIH Threshold Limit Values, as amended (03 2014)

fraction.			
Hydroquinone	TWA	1 mg/m3	US. ACGIH Threshold Limit Values, as amended (03 2014)
	Ceil_Time	2 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended (2010)
	PEL	2 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended (02 2006)
	TWA	2 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended (1989)

Appropriate Engineering Controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Emergency showers and eye wash stations should be available.

Individual protection measures, such as personal protective equipment

General information: Educate and train employees in the safe use and handling of this product. Do not eat, drink or smoke when using the product. Eye wash facilities and emergency shower must be available when handling this product. Wash at the end of each work shift and before eating, smoking and using the toilet.

Eye/face protection: Safety goggles

Skin Protection

Hand Protection: Protective gloves should be used if there is a risk of direct contact or splash., Chemical resistant gloves required for prolonged or repeated contact., Butyl rubber., Glove thickness: > 0.35 mm, Break-through time: > 240 min, Risk of splashes:, Nitrile rubber., Nitrile gloves are recommended, but be aware that the liquid may penetrate the gloves. Frequent change is advisable., The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Skin and Body Protection: Wear suitable protective clothing as protection against splashing or contamination.

Respiratory Protection: Under normal conditions of use, respirator protection is not required. In case of inadequate ventilation, use respiratory protection. If respirators are used, OSHA requires compliance with its respiratory protection program (29 CFR 1910.134).

Hygiene measures: Employees should wash their hands and face before eating, drinking, or using tobacco products. Keep away from foodstuffs, drinks and tobacco.

9. Physical and chemical properties

Appearance

Physical state: liquid
Form: liquid
Color: White
Odor: Sweetish
Odor Threshold: No data available.
pH: Not applicable
Freezing point: < 0 °C (DSC)
Boiling Point: > 100 °C (DSC)

Flash Point:	> 100 °C (DSC)
Evaporation Rate:	No data available.
Flammability (solid, gas):	Not flammable.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Density:	No data available.
Relative density:	1.191 (DSC)
Solubility(ies)	
Solubility in Water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable
Self Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Kinematic viscosity:	No data available.
Dynamic viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.
Other information	
VOC Content:	130.9 g/l ~12.0 %

10. Stability and reactivity

Reactivity:	Material is stable under normal conditions.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Not known.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	None known.
Hazardous Decomposition Products:	By heating and fire, harmful vapors/gases may be formed.

11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	Inhalation is the primary route of exposure. In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.
Skin Contact:	Causes skin irritation. May cause an allergic skin reaction.
Eye contact:	Eye contact is possible and should be avoided.
Ingestion:	May be ingested by accident. Ingestion may cause irritation and malaise.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: ATEmix: 3,170.23 mg/kg

Dermal

Product: Not classified for acute toxicity based on available data.

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	LD 50 (Rabbit): > 3,000 mg/kg
2-(2-Vinyloxyethoxy) ethyl acrylate	LD 50 (Rat): > 2,000 mg/kg
Hexamethylene diacrylate	LD 50 (Rabbit): 3,650 mg/kg
Oxybis(methyl-2,1-ethanediyl) diacrylate	LD 50 (Rabbit): > 2,000 mg/kg
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	LD 50 (Rat): > 2,000 mg/kg
Heptane	LD 50 (Rabbit): > 2,000 mg/kg LD50 (rabbit): > 2,000 mg/kg
Phenol, 4-methoxy-	LD 50 (Rat): > 2,000 mg/kg
Hydroquinone	LD 50 (Rabbit): > 2,000 mg/kg

Inhalation

Product: Not classified for acute toxicity based on available data.

Components:

Titanium dioxide	LC 50 (Rat): > 6.82 mg/l
2-(2-Vinyloxyethoxy) ethyl acrylate	LC 50 (Rat): > 5.04 mg/l
Isodecyl acrylate	LC 50 (Rat): > 1.19 mg/l
Hexamethylene diacrylate	LC 0 (Rat): 0.41 mg/l
Heptane	LC50 (rat): 103 mg/l

Repeated dose toxicity

Product: No data available.

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	LOAEL (Rat(Female, Male), Inhalation): 0.753 mg/l Inhalation Read-across from supporting substance (structural analogue or surrogate), Key study NOAEL (rat(male/female)): 100 mg/kg Based on available data, the classification criteria are not met. NOAEL (Rat(Female, Male), Oral, 28 - 53 d): 100 mg/kg Oral Experimental result, Key study NOAEL (Rat(Female, Male), Inhalation): 0.075 mg/l Inhalation Read-across from supporting substance (structural analogue or surrogate), Key study NOAEL (Rat(Female, Male), Inhalation): 0.226 mg/l Inhalation Read-across from supporting substance (structural analogue or surrogate), Key study
Titanium dioxide	NOAEL (Hamster, Syrian(Female), Inhalation): 2.1 mg/m3 Inhalation Experimental result, Supporting study NOAEL (Rat(Female, Male), Inhalation): 10 mg/m3 Inhalation Experimental result, Key study NOAEL (Rat(Female, Male), Inhalation): 50 mg/m3 Inhalation Experimental result, Key study NOAEL (Rat(Male), Oral, 29 d): 24,000 mg/kg Oral Experimental result, Key study NOAEL (Hamster, Syrian(Female), Inhalation): 9.9 mg/m3 Inhalation Experimental result, Supporting study
2-(2-Vinyloxyethoxy) ethyl acrylate	NOAEL (Rat(Female, Male), Oral, 28 d): 160 mg/kg Oral Experimental result, Key study
Phenoxyethylacrylate	NOAEL (Rat(Female, Male), Oral, 2 Weeks): 500 mg/kg Oral Experimental result, Supporting study
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	LOAEL (Rat(Female, Male), Oral, 28 d): 250 mg/kg Oral Experimental result, Key study No data available. NOAEL (Rat(Female, Male), Oral, 28 d): 50 mg/kg Oral Experimental result, Key study LOAEL (Rat(Female, Male), Oral, 64 - 91 d): 300 mg/kg Oral Experimental result, Key study NOAEL (Rat(Female, Male), Oral, 64 - 91 d): 100 mg/kg Oral Experimental result, Key study
Isodecyl acrylate	NOAEL (Rat(Female, Male), Inhalation): 0.075 mg/l Inhalation Read-across from supporting substance (structural analogue or surrogate), Key study
Hexamethylene diacrylate	NOAEL (Rat(Female, Male), Oral, 28 - 52 d): 250 mg/kg Oral Experimental result, Key study
Oxybis(methyl-2,1-ethanediyl) diacrylate	NOAEL (Rat(Female, Male), Oral, 28 - 52 d): 250 mg/kg Oral Read-across from supporting substance (structural analogue or surrogate), Key study
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	NOAEL (Rat(Male), Oral, 1.25 - 22.75 Months): 25 mg/kg Oral Experimental result, Key study
Phenol, 4-methoxy-	LOAEL (Rat(Female, Male), Oral, >= 28 d): 300 mg/kg Oral Experimental result, Key study No data available. NOAEL (Rat(Female, Male), Oral, >= 28 d): 150 mg/kg Oral Experimental result, Key study

Skin Corrosion/Irritation

Product: The health hazard evaluation is based on the toxicological properties of a similar material.

Serious Eye Damage/Eye Irritation

Product: No data available.

Components:

Titanium dioxide	Rabbit, 24 hrs: Not irritating
2-(2-Vinyloxyethoxy) ethyl acrylate	Rabbit: Not irritating
Oxybis(methyl-2,1-ethanediyl) diacrylate	Rabbit, 24 - 72 hrs: Category 1
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	Rabbit, 24 - 72 hrs: Not irritating
Heptane	Rabbit, 24 - 72 hrs: Not irritating

Respiratory or Skin Sensitization

Product: No data available.

Components:

Hexamethylene diacrylate	Skin sensitization:, in vivo (Guinea pig): Sensitising
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Heptane	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Phenol, 4-methoxy-	Skin sensitization:, in vivo (Guinea pig): Sensitising
Hydroquinone	Skin sensitization:, in vivo (Guinea pig): Sensitising

Carcinogenicity

Product: Not classified The titanium dioxide in this product is embedded in a matrix which minimizes the likelihood of exposure to the pigment.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Titanium dioxide	Overall evaluation: 2B. Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Components:

Phenol, 4-methoxy-	No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product:	No data available.
Components:	
Phenol, 4-methoxy-	No information available.

Target Organs
Specific Target Organ Toxicity - Single Exposure: Respiratory tract irritation.

Aspiration Hazard

Product:	No data available.
Components:	
Phenol, 4-methoxy-	No data available.

Other effects:	No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product:	No data available.
Components:	
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	LC 50 (Danio rerio, 96 h): 0.704 mg/l Experimental result, Key study
Titanium dioxide	LC 50 (Pimephales promelas, 96 h): > 1,000 mg/l experimental result
2-(2-Vinyloxyethoxy) ethyl acrylate	LC 50 (Danio rerio, 96 h): 6.8 mg/l Experimental result, Key study LOAEL (Danio rerio, 96 h): 4.6 mg/l Experimental result, Key study NOAEL (Danio rerio, 96 h): 2.2 mg/l Experimental result, Key study
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	LC 50 (Oryzias latipes, 48 h): +/- 6.53 mg/l Experimental result, Key study
Hexamethylene diacrylate	LC 50 (Leuciscus idus, 96 h): 4.6 - 10 mg/l Experimental result, Key study
Oxybis(methyl-2,1-ethanediyl) diacrylate	NOAEL (Leuciscus idus, 96 h): 1 mg/l Experimental result, Key study LC 50 (Leuciscus idus, 96 h): 2.2 mg/l
Tetrahydrofurfuryl alcohol	LC 50 (Oryzias latipes, 96 h): > 101 mg/l Experimental result, Key study
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	LC 50 (96 h): 0.199 mg/l QSAR QSAR, Key study
Heptane	LC50 (Leuciscus idus (golden orfe), 48 h): > 270 mg/l
Phenol, 4-methoxy-	LC 50 (Oncorhynchus mykiss, 96 h): 28.5 mg/l Experimental result, Key study

Hydroquinone	LC 50 (Oncorhynchus mykiss, 96 h): 0.638 mg/l Experimental result, Key study

Aquatic Invertebrates

Product: No data available.

Components:

Titanium dioxide	EC 50 (48 h): > 1,000 mg/l experimental result
2-(2-Vinyloxyethoxy) ethyl acrylate	NOAEL (Daphnia magna, 48 h): 25 mg/l Experimental result, Key study EC 50 (Daphnia magna, 48 h): 55 mg/l Experimental result, Key study
Phenoxyethylacrylate	EC 50 (Daphnia magna, 48 h): 1.21 mg/l Experimental result, Key study
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	EC 50 (Daphnia magna, 48 h): 3.53 mg/l Experimental result, Key study
Hexamethylene diacrylate	EC 50 (Daphnia magna, 48 h): 2.6 mg/l Experimental result, Key study
Tetrahydrofurfuryl alcohol	EC 50 (Daphnia magna, 48 h): > 91.7 mg/l Experimental result, Key study
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	EC 50 (Daphnia magna, 48 h): 0.61 mg/l Experimental result, Key study NOAEL (Daphnia magna, 48 h): 0.23 mg/l Experimental result, Key study EC 50 (Daphnia magna, 24 h): > 0.7 mg/l Experimental result, Key study NOAEL (Daphnia magna, 48 h): 0.15 mg/l Experimental result, Key study EC 50 (Daphnia magna, 48 h): 0.48 mg/l Experimental result, Key study
Heptane	EC 50 (Daphnia magna, 48 h): 1.5 mg/l Experimental result, Key study EC50 (Daphnia magna (water flea), 24 h): > 10 mg/l EC 50 (Daphnia magna, 48 h): 3.9 mg/l Experimental result, Key study
Phenol, 4-methoxy-	NOAEL (Daphnia magna, 48 h): 1.32 mg/l Experimental result, Key study EC 50 (Daphnia magna, 48 h): 3 mg/l Experimental result, Key study
Hydroquinone	EC 50 (Daphnia magna, 48 h): 0.134 mg/l Experimental result, Key study

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Components:

Titanium dioxide	LC 50 (Oncorhynchus mykiss, 28 d): 7.31 mg/l interpreted

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: No data available.

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	> 0 % Detected in water. Experimental result, Key study 3.9 % Detected in water. Experimental result, Key study 34.6 % Detected in water. Experimental result, Key study 26 % Detected in water. Experimental result, Key study 57 % Detected in water. Experimental result, Key study
2-(2-Vinyloxyethoxy) ethyl acrylate	> 84.4 % (28 d) Detected in water. Experimental result, Key study 82 %
Phenoxyethylacrylate	22.3 % (28 d) Detected in water. Experimental result, Key study
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	> 0 - 10 % (28 d) Detected in water. Experimental result, Key study
Isodecyl acrylate	70 - 80 % (15 d) Detected in water. Read-across from supporting substance (structural analogue or surrogate), Key study
Hexamethylene diacrylate	60 - 70 % (28 d) Detected in water. Experimental result, Key study
Oxybis(methyl-2,1-ethanediyl) diacrylate	90 - 100 % (28 d) Detected in water. Experimental result, Key study
Tetrahydrofurfuryl alcohol	92 % (28 d) Detected in water. Experimental result, Key study 0 % (60 d) Detected in water. Experimental result, Supporting study
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	4.5 % (28 d) Detected in water. Experimental result, Key study > 75 % soil Experimental result, Key study > 85 % soil Experimental result, Key study > 80 % soil Experimental result, Key study < 10 % (20 d) Detected in water. Not specified, Not specified
Heptane	63.2 % Detected in water. Experimental result, Key study 100 % (25 d) Detected in water. Experimental result, Supporting study 28.2 % Detected in water. Experimental result, Key study 100 % (4 d) Detected in water. Experimental result, Supporting study 70 % Detected in water. Experimental result, Key study
Phenol, 4-methoxy-	99 % (28 d) Detected in water. Experimental result, Key study 86 % (28 d) Detected in water. Experimental result, Key study > 75 % (56 d) Detected in water. Experimental result, Supporting study 100 % (8 d) soil Experimental result, Supporting study 100 % (6 d) Detected in water. Experimental result, Supporting study
Hydroquinone	86 % (14 d) Detected in water. Experimental result, Supporting study >= 99.9 % Sediment Experimental result, Key study 70 % (14 d) Detected in water. Experimental result, Supporting study 100 % Detected in water. Experimental result, Supporting study 97.5 % (5 d) Detected in water. Experimental result, Key study

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	Danio rerio, Bioconcentration Factor (BCF): 37 Aquatic sediment Read-across from supporting substance (structural analogue or surrogate), Weight of Evidence study
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	Cyprinus carpio, Bioconcentration Factor (BCF): 22 - 32 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 18 - 22 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 53 - 72 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 23 - 40 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 47 - 55 Aquatic sediment Experimental result, Key study
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	Cyprinus carpio, Bioconcentration Factor (BCF): 230 - 2,500 Aquatic sediment Experimental result, Weight of Evidence study Cyprinus carpio, Bioconcentration Factor (BCF): 230 - 2,500 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 330 - 1,800 Aquatic sediment Experimental result, Key study Bioconcentration Factor (BCF): 598.4 Aquatic sediment Estimated by calculation, Weight of Evidence study Cyprinus carpio, Bioconcentration Factor (BCF): 13 - 17 Aquatic sediment Experimental result, Supporting study
Heptane	Bioconcentration Factor (BCF): 552 Aquatic sediment Estimated by calculation, Key study

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: Not applicable

Mobility in soil: No data available.

Components:

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	No data available.
Titanium dioxide	No data available.
2-(2-Vinyloxyethoxy) ethyl acrylate	No data available.
Phenoxyethylacrylate	No data available.
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	No data available.
Tetrahydrofurfuryl acrylate	No data available.
2-Propenoic acid ,1-6-hexanediyl ester, polymer with 2-aminoethanol	No data available.
Isodecyl acrylate	No data available.
Hexamethylene diacrylate	No data available.
Ethoxylated phenyl acrylate	No data available.
Oxybis(methyl-2,1-ethanediyl) diacrylate	No data available.
Tetrahydrofurfuryl alcohol	No data available.
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	No data available.
Heptane	No data available.
Phenol, 4-methoxy-	No data available.
Tris(N-hydroxy-N-nitrosophenylaminato-O,O')aluminium	No data available.
Hydroquinone	No data available.

Other adverse effects: Toxic to aquatic life with long lasting effects.

13. Disposal considerations

General information: Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Disposal methods: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Since emptied containers retain product residue, follow label warnings even after container is emptied.

Contaminated Packaging: Dispose in accordance with all applicable regulations.

US. RCRA Hazardous Waste Classification (40 CFR 261) If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

14. Transport information

DOT

UN Number	UN3082
UN Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.(Acrylate)
Transport Hazard Class(es)	
Class	9
Label(s)	9
Packing Group	III
Environmental Hazards	Yes
Special precautions for user	Not regulated if packaging <= 5L

IATA

UN Number	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.(Acrylate)
Transport Hazard Class(es)	
Class	9
Label(s)	9MI (Miscellaneous)
Packing Group	III
Excepted quantity	E1
Environmental Hazards	Yes
Special precautions for user	SPECIAL PROVISION A197
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN Number	UN3082
UN Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Acrylate)
Transport Hazard Class(es)	
Class	9
Label(s)	9
EmS No.	F-AS-F
Packing Group	III
Limited quantity	5.00L
Excepted quantity	E1
Environmental Hazards	Yes
Special precautions for user	CODE 2.10.2.7

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Chemical Identity	Reportable quantity
2-(2-Vinyloxyethoxy) ethyl acrylate	De minimis concentration: 1.0% One-Time Export Notification only.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
Heptane	lbs. 100

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate (Acute) Health Hazards
Delayed (Chronic) Health Hazard
Skin Corrosion or Irritation
Serious eye damage or eye irritation
Respiratory or Skin Sensitization
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	10000 lbs
Titanium dioxide	10000 lbs
2-(2-Vinyloxyethoxy) ethyl acrylate	10000 lbs
Phenoxyethylacrylate	10000 lbs
Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-	10000 lbs
Tetrahydrofurfuryl acrylate	10000 lbs
2-Propenoic acid ,1-6-hexanediyl ester, polymer with 2-aminoethanol	10000 lbs
Isodecyl acrylate	10000 lbs
Hexamethylene diacrylate	10000 lbs
Ethoxylated phenyl acrylate	10000 lbs
Oxybis(methyl-2,1-ethanediyl) diacrylate	10000 lbs
Tetrahydrofurfuryl alcohol	10000 lbs
2,6-bis(1,1-dimethylethyl)-4-methyl-phenol	10000 lbs
Heptane	10000 lbs
Phenol, 4-methoxy-	10000 lbs
Tris(N-hydroxy-N-nitrosophenylaminato-O,O')aluminium	10000 lbs
Hydroquinone	10000 lbs

SARA 313 (TRI Reporting)

Chemical Identity	Reporting threshold for other users	Reporting threshold for manufacturing and processing
Phenoxyethylacrylate	N230 lbs	N230 lbs.
Ethoxylated phenyl acrylate	N230 lbs	N230 lbs.

Clean Air Act (CAA) Section 111 SOCMI Intermediate or Final Volatile Organic Compounds (40 CFR 60.489):

Chemical Identity
2-phenoxyethanol

Clean Air Act (CAA) Section 112, 1990 Amendments, Statutory Hazardous Air Pollutants:

Chemical Identity
Phenoxyethylacrylate
Ethoxylated phenyl acrylate
2-phenoxyethanol

Clean Air Act (CAA) Section 112(i) High-Risk Hazardous Air Pollutants (40 CFR 63.74):

None present.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

This product can expose you to chemicals including Titanium dioxide which is [are] known to the State of California to cause cancer.
For more information go to www.P65Warnings.ca.gov.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Titanium dioxide
Phenoxyethylacrylate
Ethoxylated phenyl acrylate

US. Massachusetts RTK - Substance List

Chemical Identity
Titanium dioxide

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity
Titanium dioxide
Phenoxyethylacrylate
Ethoxylated phenyl acrylate

US. Rhode Island RTK

Chemical Identity
Titanium dioxide

US. Toxic Substances Control Act (TSCA)

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substance Control Act (U.S, EPA TSCA) 8(b) inventory.

16.Other information, including date of preparation or last revision

Issue Date:	09-13-2019
Revision Information:	No data available.
Version #:	1.2
Further Information:	This information is furnished without warranty, expressed or implied, and is believed to be accurate to the best knowledge of the manufacturer. The data on this SDS relates only to the specific material designated herein. The manufacturer assumes no legal responsibility for use or reliance upon these data.