Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

Product Name • **ALPHA E-20 Emulsion**

Product Description • Blue liquid

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

Relevant identified use(s) • Water-based emulsion

1.3 Details of the supplier of the safety data sheet

Manufacturer • IKONICS Corporation
4832 Grand Ave.
Duluth, MN 55807
United States
www.ikonics.com
sds@ikonics.com

Telephone (General) • (218) 628-2217

Telephone (General) • (800) 328-4261 - Toll free

1.4 Emergency telephone number

Chemtrec • 1-800-424-9300 - Within USA and Canada
• +1 703-527-3887 - Outside USA and Canada (collect calls accepted)

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 2015/830]

2.1 Classification of the substance or mixture

CLP • Skin Irritation 2 - H315
Skin Sensitization 1 - H317
Eye Irritation 2 - H319
Hazardous to the aquatic environment Chronic 3 - H412
EUH208

2.2 Label Elements

CLP

WARNING

Hazard statements • H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H412 - Harmful to aquatic life with long lasting effects.
EUH208 - Contains sensitizing substances (2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester; Acrylic acid, propylenebis(oxypropylene) ester; Pentaerythritol Tetraacrylate). May produce an allergic reaction.

Precautionary

statements

Prevention
- P261 - Avoid breathing dust, fume, gas, mist, vapors and/or spray.
  P264 - Wash thoroughly after handling.
  P272 - Contaminated work clothing should not be allowed out of the workplace.
  P273 - Avoid release to the environment.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
  P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
  P362 - Take off contaminated clothing and wash before reuse.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P337+P313 - If eye irritation persists: Get medical advice/attention.
  P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other Hazards

CLP
- No data available

UN GHS

According to: UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS): Eighth Revised Edition

2.1 Classification of the substance or mixture

UN GHS
- Skin Irritation 2 - H315
  Skin Sensitization 1 - H317
  Eye Irritation 2 - H319
  Hazardous to the aquatic environment Acute 3 – H402
  Hazardous to the aquatic environment Chronic 3 - H412

2.2 Label elements

UN GHS

WARNING

Hazard statements
- H315 - Causes skin irritation.
  H317 - May cause an allergic skin reaction.
  H319 - Causes serious eye irritation.
  H402 - Harmful to aquatic life
  H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention
- P261 - Avoid breathing dust, fume, gas, mist, vapors and/or spray.
  P264 - Wash thoroughly after handling.
  P272 - Contaminated work clothing should not be allowed out of the workplace.
  P273 - Avoid release to the environment.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
  P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
  P362 - Take off contaminated clothing and wash before reuse.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P337+P313 - If eye irritation persists: Get medical advice/attention.
  P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal
- P501 - Dispose of content and/or container in accordance with local, regional, national,

and/or international regulations.

2.3 Other hazards

UN GHS

- No data available

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Skin Irritation 2 - H315
  Skin Sensitization 1 - H317
  Eye Irritation 2 - H319

2.2 Label elements

OSHA HCS 2012

WARNING

Hazard statements

- H315 - Causes skin irritation.
  H317 - May cause an allergic skin reaction.
  H319 - Causes serious eye irritation.

Precautionary statements

Prevention

- P261 - Avoid breathing dust, fume, gas, mist, vapors and/or spray.
  P264 - Wash thoroughly after handling.
  P272 - Contaminated work clothing should not be allowed out of the workplace.
  P273 - Avoid release to the environment.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response

- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
  P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
  P362 - Take off contaminated clothing and wash before reuse.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P337+P313 - If eye irritation persists: Get medical advice/attention.
  P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal

- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- No data available

Canada

According to WHMIS 2015

2.1 Classification of the substance or mixture

WHMIS 2015

- Skin Irritation 2 - H315
  Skin Sensitization 1 - H317
  Eye Irritation 2 - H319

2.2 Label elements

WHMIS 2015

WARNING

Hazard statements
- H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.

Precautionary statements

Prevention
- P261 - Avoid breathing dust, fume, gas, mist, vapors and/or spray.
P264 - Wash thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362 - Take off contaminated clothing and wash before reuse.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P321 - Specific treatment, see supplemental first aid information.

Storage/Disposal
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

WHMIS 2015
- No data available

2.4 Other information

NFPA

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

3.1 Substances

3.2 Mixtures

Hazardous Components				
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**
Pentaerythritol Tetraacrylate	**CAS:**4986-89-4 **EC Number:**225-644-1 **EINECS:**225-644-1	10% TO 15%		**GHS / CLP / OSHA / WHMIS:** Eye Irrit. 2A; Skin Irrit. 2; Skin Sens. 1
Acrylic acid, propylenebis(oxypropylene) ester	**CAS:**42978-66-5 **EC Number:**256-032-2 **EINECS:**256-032-2	10% TO 15%	Ingestion/Oral-Rat LD50 • 6200 mg/kg Skin-Rabbit LD50 • >2 g/kg	**GHS / CLP:** Aquatic Chronic 2; Eye Irrit. 2A; Skin Irrit. 2; Skin Sens. 1; STOT SE 3: Resp. Irrit. **OSHA / WHMIS:** Eye Irrit. 2A; Skin Irrit. 2; Skin Sens. 1; STOT SE 3: Resp. Irrit.
2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	**CAS:**3524-68-3 **EC Number:**222-540-8 **EINECS:**222-540-8	< 3%	Ingestion/Oral-Rat LD50 • 1830 mg/kg Skin-Rabbit LD50 • 4 mL/kg	**GHS / CLP / OSHA / WHMIS:** Skin Irrit. 2; Skin Sens. 1
Benzophenone	**CAS:**119-61-9 **EINECS:**204-337-6	< 1%	Ingestion/Oral-Rat LD50 • >10 g/kg Skin-Rabbit LD50 • 3535 mg/kg	**GHS / CLP:** Aquatic Acute 1; Aquatic Chronic 1; Eye Irrit. 2 **OSHA / WHMIS:** Eye Irrit. 2

1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	**CAS:**119313-12-1 **EC Number:**404-360-3	< 0.4%	Ingestion/Oral-Rat LD50 • >2000 mg/kg Skin-Rat LD50 • >=2000 mg/kg	**GHS / CLP:** Aquatic Acute 1; Aquatic Chronic 1 **OSHA / WHMIS:**

European Chemicals Agency – Candidate List of Substances of Very High Concern for Authorization
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl), CAS #119313-12-1; (2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone); listed 16/01/2020; <0.4%

See Section 11 for Toxicological Information.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration and call 911 or emergency medical service.

Skin
- IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Eye
- 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.

Ingestion
- If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Rinse mouth. Never give anything by mouth to an unconscious person. If large quantities are swallowed, call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- SMALL FIRES: Dry chemical, CO2, water spray or regular foam.
  LARGE FIRE: Water spray, fog or regular foam.

Unsuitable Extinguishing Media
- No data available

Firefighting Procedures
- LARGE FIRES: Use extinguishing agent suitable for type of surrounding fire.
  Fire fighters should wear complete protective clothing including self-contained breathing apparatus.
  Keep unauthorized personnel away.
  Ventilate closed spaces before entering.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Some of these materials may burn, but none ignite readily.

Hazardous Combustion Products
- Products of combustion include: carbon oxides (COx).

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
  Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
  Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate enclosed areas.

Emergency Procedures
- No emergency procedures are expected to be necessary if material is used under ordinary conditions as recommended. Use normal clean up procedures.

6.2 Environmental precautions

- LARGE SPILLS: Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Use appropriate Personal Protective Equipment (PPE)
  Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in suitable container.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling
- Use good safety and industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities

Storage
- Keep container closed when not in use. Store away from extreme heat. Do not freeze.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

8.2 Exposure controls

Engineering Measures/Controls
- Local exhaust is recommended but not required. Provide adequate ventilation as necessary.

Personal Protective Equipment

Pictograms
- 

Respiratory
- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face
- Wear protective eyewear (goggles, face shield, or safety glasses).

Hands
- Wear protective gloves - rubber or neoprene.

Skin/Body
- Wear protective clothing - apron or other impervious body coverings.

General Industrial Hygiene Considerations
- Handle in accordance with good industrial hygiene and safety practice.

Environmental Exposure Controls
- No data available

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Liquid	**Appearance/Description**	Viscous liquid
Color	Blue	**Odor**	Mild
Odor Threshold	No data available		
General Properties			
Boiling Point	100 C(212 F)	**Melting Point**	No data available
Decomposition Temperature	Not relevant	**pH**	No data available
Density	8.71 lbs/gal	**Water Solubility**	Miscible
Viscosity	9000-12,000 Centipoise (cPs, cP) or mPas @ 25 C (77 F)	**Explosive Properties**	Not relevant
Oxidizing Properties:	Not relevant		
Volatility			
Vapor Pressure	Not relevant	**Vapor Density**	Not relevant
Evaporation Rate	No data available	**VOC (Wt.)**	Not relevant
Volatiles (Wt.)	61 to 71 %		
Flammability			
Flash Point	> 200 F(> 93.3333 C)	**UEL**	Not relevant
LEL	Not relevant	**Autoignition**	Not relevant
Flammability (solid, gas)	Not relevant		
Environmental			
Half-Life	No data available	**Octanol/Water Partition coefficient**	No data available
Coefficient of water/oil distribution	No data available	**Bioaccumulation Factor**	No data available
Bioconcentration Factor	No data available	**Biochemical Oxygen Demand BOD/BOD5**	No data available
Chemical Oxygen Demand	No data available	**Persistence**	No data available
Degradation	No data available		

9.2 Other Information

- Polymerizes to solid/semisolid form upon exposure to UV radiation.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- UV reactive.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Avoid freezing. Excess heat.

10.5 Incompatible materials

- No data available

10.6 Hazardous decomposition products

- No decomposition is expected under normal storage and use conditions. Hazardous decomposition products formed under fire conditions - carbon oxides (COx).

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Acrylic acid, propylenebis(oxypropylene) ester (10% TO 15%)	42978-66-5	**Acute Toxicity:** orl-rat LD50:6200 mg/kg; skn-rbt LD50:>2 gm/kg; **Irritation:** eye-rbt 100 uL/24H SEV; skn-rbt 500 mg MOD; **Reproductive:** orl-rat TDLo:1 gm/kg (6-15D preg)
2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester (< 3%)	3524-68-3	**Acute Toxicity:** orl-rat LD50:1830 mg/kg; skn-rbt LD50:4 mL/kg; **Irritation:** eye-rbt 1 mg SEV; skn-rbt 500 mg open MLD; **Reproductive:** orl-rat TDLo:500 mg/kg (6-15D preg); **Tumorigen/Carcinogen:** skn-mus TDLo:16 gm/kg/80W-I
Benzophenone (< 1%)	119-61-9	**Acute Toxicity:** orl-rat LD50:>10 gm/kg; Skin-Rabbit LD50 • 3535 mg/kg; **Reproductive:** orl-rat TDLo:4200 mg/kg (6-19D preg)
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl) (< 0.4%)	119313-12-1	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >2000 mg/kg; Skin-Rat LD50 • >=2000 mg/kg

GHS Properties	Classification
Skin corrosion/Irritation	**EU/CLP**•Skin Irritation 2 **OSHA HCS 2012**•Skin Irritation 2 **UN GHS**•Skin Irritation 2 **Canada WHMIS 2015**•Skin Irritation 2
Skin sensitization	**EU/CLP**•Skin Sensitizer 1 **OSHA HCS 2012**•Skin Sensitizer 1 **UN GHS**•Skin Sensitizer 1 **Canada WHMIS 2015**• Skin Sensitizer 1
Serious eye damage/Irritation	**EU/CLP**•Eye Irritation 2 **OSHA HCS 2012**•Eye Irritation 2 **UN GHS**•Eye Irritation 2 **Canada WHMIS 2015**•Eye Irritation 2

Route(s) of entry/exposure
- Skin, Eye

Potential Health Effects

Inhalation

Acute (Immediate)
- May cause irritation.

Chronic (Delayed)
- Repeated and prolonged exposure may cause irritation.

Skin

Acute (Immediate)
- Causes skin irritation. May cause an allergic skin reaction.

Chronic (Delayed)
- Repeated and prolonged exposure may cause sensitization.

Eye

Acute (Immediate)
- Causes serious eye irritation.

Chronic (Delayed)
- Repeated and prolonged exposure may be harmful.

Ingestion

Acute (Immediate)
- May cause irritation.

Chronic (Delayed)
- No specific information available.

Carcinogenic Effects			
	CAS	IARC	NTP
Benzophenone	119-61-9	Group 2B-Possible Carcinogen	Evidence of Carcinogenicity

Section 12 - Ecological Information

12.1 Toxicity

Component	CAS	Data
Benzophenone (< 1%)	119-61-9	**Crustacea:** 24 Hour(s) EC50 Crustacea .28 mg/L ; **Fish:** 96 Hour(s) LC50 Fish 14.2 mg/L
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl) (< 0.4%)	119313-12-1	**Crustacea:** 24 Hour(s) EC50 Water Flea .8 mg/L ; **Fish:** 96 Hour(s) LC50 Fish .46 mg/L

12.2 Persistence and degradability

- No data available

12.3 Bioaccumulative potential

- No data available

12.4 Mobility in Soil

- No data available

12.5 Results of PBT and vPvB assessment

- No data available

12.6 Other adverse effects

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of container in accordance with local, regional, national, and/or international regulations.

13.2 Other Information

- Dispose of wastes in an approved waste disposal facility.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	NDA	NDA	NDA	NDA
IMO/IMDG	NDA	NDA	NDA	NDA	NDA
IATA/ICAO	NDA	NDA	NDA	NDA	NDA

14.6 Special precautions for user
- None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

14.8 Other information

DOT
- Not regulated

IMO/IMDG
- Not regulated

IATA/ICAO
- Not regulated

Section 15 - Regulatory Information

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

SARA Hazard Classifications
- Acute

Inventory						
Component	**CAS**	**Australia AICS**	**Canada DSL**	**China**	**EU EINECS**	**EU ELNICS**
Pentaerythritol Tetraacrylate	4986-89-4	Yes	Yes	Yes	Yes	No
Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	Yes	Yes	Yes	Yes	No
2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-	3524-68-3	Yes	Yes	Yes	Yes	No

2-propenyl)oxy)methyl)-1,3-propanediyl ester						
Benzophenone	119-61-9	Yes	Yes	Yes	Yes	No
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	Yes	Yes	Yes	No	Yes

Inventory (Con't.)

Component	CAS	Japan ENCS	Korea KECL	New Zealand	Philippines PICCS	Switzerland SWISS
Pentaerythritol Tetraacrylate	4986-89-4	Yes	Yes	Yes	Yes	No
Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	Yes	Yes	Yes	Yes	No
2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	Yes	Yes	Yes	Yes	No
Benzophenone	119-61-9	Yes	Yes	Yes	Yes	No
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	Yes	Yes	Yes	Yes	Yes

Inventory (Con't.)

Component	CAS	TSCA
Pentaerythritol Tetraacrylate	4986-89-4	Yes
Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	Yes
2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	Yes
Benzophenone	119-61-9	Yes
1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	Yes

Australia

Labor

Australia - High Volume Industrial Chemicals List

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Europe

Other

EU - Endocrine Disrupters (COM (2001)262) - Candidate List of Substances

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	Group III Chemical
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Germany

Environment

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	ID Number 1868, hazard class 2 - hazard to waters
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-	3524-68-3	< 3%	Not Listed

1,3-propanediyl ester			
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	ID Number 2024, hazard class 2 - hazard to waters
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	ID Number 2102, hazard class 2 - hazard to waters

Japan

Environment

Japan - Pollutant Release Transfer Register (PRTR) - Class 1 Substances

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	403 >=1 %
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Inventory - Japan - Industrial Safety and Health Law Substances (ISHL)

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	9-768; 9-2531
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	8-(7)-927

Other

Japan - Chemical Substance Control Law (CSCL) - Examined Existing Chemical Substances

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Non-decomposable/Low-concentrate
•Benzophenone	119-61-9	< 1%	Low-decomposable (see also 4-125); Non-decomposable/Low-concentrate (see also 4-125)
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Japan - Fire Service Law - Hazardous Materials

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Group 4 - Flammable liquids III (listed under 3rd Class petroleums - insoluble)
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Group 4 - Flammable liquids III (listed under 3rd Class petroleums - insoluble)
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	Not Listed

Korea

Labor

Korea - MOE - Harmful Substances

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	92-23

Korea - ISHA - Name, Toxicity and Protective Measures of New Chemical Substances

•Pentaerythritol Tetraacrylate	4986-89-4	10% TO 15%	Not Listed
•Acrylic acid, propylenebis(oxypropylene) ester	42978-66-5	10% TO 15%	Not Listed
•2-Propenoic acid, 2-(hydroxymethyl)-2-(((1-oxo-2-propenyl)oxy)methyl)-1,3-propanediyl ester	3524-68-3	< 3%	Not Listed
•Benzophenone	119-61-9	< 1%	Not Listed
•1-Butanone, 2-(dimethylamino)-1-(4-(4-morpholinyl)phenyl)-2-(phenylmethyl)	119313-12-1	< 0.4%	94-20

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out for this substance/mixture by the

supplier.

15.3 Other Information

- California Proposition 65: This product can expose you to chemicals known to the State of California to cause cancer:
  Benzophenone CAS No. 119-61-9 <1%
  1,4-Dioxane CAS No. 123-91-1 <0.00007%

Section 16 - Other Information

Relevant Phrases (code & full text)

- EUH208 - Contains sensitizing substances. May produce an allergic reaction.
  H315 - Causes skin irritation
  H317 - May cause an allergic skin reaction
  H319 - Causes serious eye irritation
  H402 - Harmful to aquatic life
  H412 - Harmful to aquatic life with long lasting effects
  P261 - Avoid breathing dust, fume, gas, mist, vapors and/or spray.
  P264 - Wash thoroughly after handling.
  P272 - Contaminated work clothing should not be allowed out of the workplace.
  P273 - Avoid release to the environment.
  P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
  P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P321 - Specific treatment, see supplemental first aid information.
  P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
  P337+P313 - If eye irritation persists: Get medical advice/attention.
  P362 - Take off contaminated clothing and wash before reuse.
  P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Classification method for mixtures
- Calculation method.

Last Revision Date
- 02 August 2018

Preparation Date
- 10 February 2020

Other Information
- Approved by: Troy Bergstedt, Director of Chemical Research, (218) 628-2217 ext.142.

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