

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking**1.1 Product identifier****Product Name** • **Hydro-X, Hydro-X Z1 Emulsions****Product Description** • Blue or red 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 Sensitization 1 - H317
Eye Irritation 2 - H319
EUH208 – Contains sensitizing substances (Ethyl(2,4,6-trimethylbenzoyl) phenyl phosphinate; Pentaerythritol Triacrylate; Pentaerythritol Tetraacrylate; Phenyl bis(2,4,6-trimethylbenzoyl)phosphine oxide). May produce an allergic reaction.**2.2 Label Elements****CLP****WARNING****Hazard statements** • 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.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

- Response** • 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.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P321 - Specific treatment, see supplemental first aid information.
P363 - Wash contaminated clothing before reuse.

- 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 3 - H316
Skin Sensitization 1 - H317
Eye Irritation 2 - H319

2.2 Label elements

UN GHS

WARNING



- Hazard statements** • H316 - Causes mild 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.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response** • P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P321 - Specific treatment, see supplemental first aid information.
P363 - Wash contaminated clothing before reuse.
- 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 Sensitization 1 - H317
 - Eye Irritation 2 - H319

2.2 Label elements

OSHA HCS 2012

WARNING



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

Precautionary statements

- Prevention**
- Avoid breathing dust, fume, gas, mist, vapors and/or spray. - P261
 - Wash thoroughly after handling. - P264
 - Contaminated work clothing should not be allowed out of the workplace. - P272
 - Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
 - If eye irritation persists: Get medical advice/attention. - P337+P313
 - IF ON SKIN: Wash with plenty of soap and water. - P302+P352
 - If skin irritation or rash occurs: Get medical advice/attention. - P333+P313
 - Specific treatment, see supplemental first aid information. - P321
 - Wash contaminated clothing before reuse. - P363

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

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 Sensitization 1 - H317
 - Eye Irritation 2 - H319

2.2 Label elements

WHMIS 2015

WARNING



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

Precautionary statements

- Prevention**
- Avoid breathing dust, fume, gas, mist, vapors and/or spray. - P261
 - Wash thoroughly after handling. - P264
 - Contaminated work clothing should not be allowed out of the workplace. - P272
 - Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
 - If eye irritation persists: Get medical advice/attention. - P337+P313

IF ON SKIN: Wash with plenty of soap and water. - P302+P352
 If skin irritation or rash occurs: Get medical advice/attention. - P333+P313
 Specific treatment, see supplemental first aid information. - P321
 Wash contaminated clothing before reuse. - P363

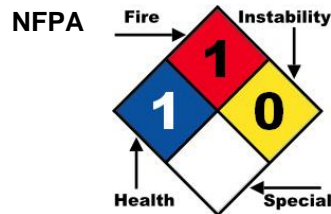
Storage/Disposal • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

WHMIS 2015

• No data available

2.4 Other information



See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

3.1 Substances

3.2 Mixtures

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Ethoxylated pentaerythritol tetraacrylate	CAS:51728-26-8	10% TO 15%		GHS / CLP / OSHA / WHMIS: Eye Irrit. 2
Aromatic urethane acrylate	NDA	3% TO 5%		GHS: Eye Irrit. 2B; Skin Irrit. 3 CLP / OSHA / WHMIS: Eye Irrit. 2
Aromatic acrylate	NDA	1% TO 3%	Ingestion/Oral-Rat LD50 • >10 g/kg Skin-Rabbit LD50 • 3535 mg/kg	GHS / CLP / OSHA / WHMIS: Eye Irrit. 2; Skin Irrit. 2
Ethyl(2,4,6-trimethylbenzoyl) phenyl phosphinate	CAS:84434-11-7 EC Number:282-810-6	1% TO 2%		GHS / CLP: Skin Sens 1; Aquatic Chronic 2 OSHA / WHMIS: Skin Sens 1
Pentaerythritol Triacrylate	CAS:3524-68-3 EC Number:222-540-8 EU Index:607-110-00-3 EINECS:222-540-8	<= 1%	Ingestion/Oral-Rat LD50 • 1830 mg/kg Skin-Rabbit LD50 • 4 mL/kg	GHS / CLP / OSHA / WHMIS: Skin Irrit. 2; Skin Sens. 1
Pentaerythritol Tetraacrylate	CAS:4986-89-4 EC Number:225-644-1 EU Index:607-122-00-9 EINECS:225-644-1	<= 1%		GHS / CLP / OSHA / WHMIS: Eye Irrit. 2A; Skin Irrit. 2; Skin Sens. 1
Phenyl bis(2,4,6-trimethylbenzoyl)phosphine oxide	CAS:162881-26-7 EC Number:423-340-5	< 0.5%		GHS / CLP: Skin Sens 1; Aquatic Chronic 2 OSHA / WHMIS: Skin Sens 1

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

- Material may burn, but does not ignite readily.

Hazardous Combustion Products

- Products of combustion include: carbon oxides (CO_x), nitrogen oxides (NO_x).

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

Exposure Control Notations

Germany DFG

- Pentaerythritol triacrylate (3524-68-3): **Sensitizers:** (skin sensitizer)

8.2 Exposure controls

Engineering

- Local exhaust is recommended but not required. Provide adequate ventilation as necessary.

Measures/Controls

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

- No data available

Controls

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 or red	Odor	Slight acrylic odor.
Odor Threshold	No data available		
General Properties			
Boiling Point	100 C (212 F)	Melting Point	Not relevant
Decomposition Temperature	Not relevant	pH	No data available
Specific Gravity/Relative Density	1.08 Water=1	Density	9.0 lbs/gal
Water Solubility	Miscible	Viscosity	11000 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	Not relevant	VOC (Vol.)	Not relevant
Volatiles (Wt.)	50 to 55 %		
Flammability			
Flash Point	>100 C (212 F)	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
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), nitrogen oxides (NOx).

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Pentaerythritol triacrylate (<= 1%)	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 MOD
GHS Properties	Classification	
Skin corrosion/Irritation	EU/CLP• OSHA HCS 2012• UN GHS• Skin Irritant 3 WHMIS 2015•	
Skin sensitization	EU/CLP•Skin Sensitizer 1 OSHA HCS 2012•Skin Sensitizer 1 UN GHS•Skin Sensitizer 1 WHMIS 2015• Skin Sensitizer 1	

Serious eye damage/Irritation	EU/CLP•Eye Irritation 2 OSHA HCS 2012•Eye Irritation 2 UN GHS•Eye Irritation 2A WHMIS 2015• Eye Irritation 2
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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)** • May cause mild irritation. May cause an allergic skin reaction.
- Chronic (Delayed)** • Repeated and prolonged exposure may cause sensitization.

Eye

- Acute (Immediate)** • Causes eye irritation.
- Chronic (Delayed)** • Repeated and prolonged exposure may be harmful.

Ingestion

- Acute (Immediate)** • May cause irritation.
- Chronic (Delayed)** • No specific information available.

Section 12 - Ecological Information

12.1 Toxicity

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

Potential Environmental Effects • No data available

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	Canada NDSL	China	EU EINECS
Pentaerythritol Triacrylate	3524-68-3	Yes	Yes	No	Yes	Yes
Ethoxylated pentaerythritol tetraacrylate	51728-26-8	Yes	No	Yes	Yes	No
Pentaerythritol Tetraacrylate	4986-89-4	Yes	Yes	No	Yes	Yes
Ethyl(2,4,6-trimethylbenzoyl) phenyl phosphinate	84434-11-7	Yes	Yes	No	Yes	Yes
Phenyl bis(2,4,6-trimethylbenzoyl)phosphine oxide	162881-26-7	Yes	Yes	No	Yes	Yes
Inventory (Con't.)						
Component	CAS	Japan ENCS		Korea KECL	TSCA	
Pentaerythritol Triacrylate	3524-68-3	Yes		Yes	Yes	
Ethoxylated pentaerythritol tetraacrylate	51728-26-8	Yes		Yes	Yes	
Pentaerythritol Tetraacrylate	4986-89-4	Yes		Yes	Yes	
Ethyl(2,4,6-trimethylbenzoyl) phenyl phosphinate	84434-11-7	Yes		Yes	No	
Phenyl bis(2,4,6-trimethylbenzoyl)phosphine oxide	162881-26-7	Yes		Yes	Yes	

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 does not contain chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H316 - Causes mild skin irritation
- H317 - May cause an allergic skin reaction
- H319 - Causes serious eye irritation
- 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.
- 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.
- P363 - Wash contaminated clothing before reuse.
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
- EUH208 - Contains sensitizing substance. May produce an allergic reaction.

Classification method for mixtures

- Calculation method

Last Revision Date

- 05 January 2022

Preparation Date

- 08 September 2022

Other Information

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

Disclaimer/Statement of Liability

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