

**1. Identification****Product identifier** Non-Halogenated Volatiles Mix #1-8015/8240**Other means of identification****Item** M-NHV1N1**Recommended use** For Laboratory Use Only**Recommended restrictions** None known.**Manufacturer/Importer/Supplier/Distributor information****Manufacturer**

<b>Company name</b>	Chem Service, Inc.	
<b>Address</b>	660 Tower Lane West Chester, PA 19380 United States	
<b>Telephone</b>	Toll Free	800-452-9994
	Direct	610-692-3026
<b>Website</b>	www.chemservice.com	
<b>E-mail</b>	info@chemservice.com	
<b>Emergency phone number</b>	Chemtec US	800-424-9300
	Chemtec outside US	+1 703-527-3887

**2. Hazard(s) identification**

<b>Physical hazards</b>	Flammable liquids	Category 2
<b>Health hazards</b>	Acute toxicity, oral	Category 3
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 3
	Serious eye damage/eye irritation	Category 2A
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 1
	Specific target organ toxicity, repeated exposure	Category 1
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		

**Signal word** Danger**Hazard statement** Highly flammable liquid and vapor. Toxic if swallowed. Toxic in contact with skin. Causes serious eye irritation. Toxic if inhaled. Suspected of damaging fertility or the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.**Precautionary statement****Prevention**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection. Wear protective gloves/protective clothing/eye protection/face protection.

<b>Response</b>	If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Call a poison center/doctor. Rinse mouth. If eye irritation persists: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
<b>Supplemental information</b>	0.01% of the mixture consists of component(s) of unknown acute dermal toxicity. 0.03% of the mixture consists of component(s) of unknown acute inhalation toxicity.

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
Methanol		67-56-1	89 - 90
Water		7732-18-5	9 - < 10
1,4-Dioxane		123-91-1	0.01
2-Butanone		78-93-3	0.01
4-Methyl-2-pentanone		108-10-1	0.01
Acetonitrile		75-05-8	0.01
Ethyl alcohol		64-17-5	0.01
Ethyl ether		60-29-7	0.01
Ethyl methacrylate		97-63-2	0.01
Isobutyl alcohol		78-83-1	0.01
Methacrylonitrile		126-98-7	0.01
Methyl methacrylate		80-62-6	0.01
Propionitrile		107-12-0	0.01

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if you feel unwell. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
<b>Most important symptoms/effects, acute and delayed</b>	Dizziness. Headache. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Prolonged exposure may cause chronic effects.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

<b>General information</b>	Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.
<b>5. Fire-fighting measures</b>	
<b>Suitable extinguishing media</b>	Alcohol resistant foam. Water fog. Carbon dioxide (CO <sub>2</sub> ). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.
<b>General fire hazards</b>	Highly flammable liquid and vapor.
<b>6. Accidental release measures</b>	
<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material.  Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.  Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
<b>Environmental precautions</b>	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

## 7. Handling and storage

### Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

### Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
1,4-Dioxane (CAS 123-91-1)	PEL	360 mg/m3
		100 ppm
2-Butanone (CAS 78-93-3)	PEL	590 mg/m3
		200 ppm
4-Methyl-2-pentanone (CAS 108-10-1)	PEL	410 mg/m3
		100 ppm
Acetonitrile (CAS 75-05-8)	PEL	70 mg/m3
		40 ppm
Ethyl alcohol (CAS 64-17-5)	PEL	1900 mg/m3
		1000 ppm
Ethyl ether (CAS 60-29-7)	PEL	1200 mg/m3
		400 ppm
Isobutyl alcohol (CAS 78-83-1)	PEL	300 mg/m3
		100 ppm
Methanol (CAS 67-56-1)	PEL	260 mg/m3
		200 ppm
Methyl methacrylate (CAS 80-62-6)	PEL	410 mg/m3
		100 ppm

#### US. ACGIH Threshold Limit Values

Components	Type	Value
1,4-Dioxane (CAS 123-91-1)	TWA	20 ppm
2-Butanone (CAS 78-93-3)	STEL	300 ppm
	TWA	200 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value
4-Methyl-2-pentanone (CAS 108-10-1)	STEL	75 ppm
	TWA	20 ppm
Acetonitrile (CAS 75-05-8)	TWA	20 ppm
Ethyl alcohol (CAS 64-17-5)	STEL	1000 ppm
Ethyl ether (CAS 60-29-7)	STEL	500 ppm
	TWA	400 ppm
Isobutyl alcohol (CAS 78-83-1)	TWA	50 ppm
Methacrylonitrile (CAS 126-98-7)	TWA	1 ppm
Methanol (CAS 67-56-1)	STEL	250 ppm
	TWA	200 ppm
Methyl methacrylate (CAS 80-62-6)	STEL	100 ppm
	TWA	50 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
1,4-Dioxane (CAS 123-91-1)	Ceiling	3.6 mg/m3
		1 ppm
2-Butanone (CAS 78-93-3)	STEL	885 mg/m3
		300 ppm
	TWA	590 mg/m3
4-Methyl-2-pentanone (CAS 108-10-1)		200 ppm
	STEL	300 mg/m3
		75 ppm
	TWA	205 mg/m3
		50 ppm
Acetonitrile (CAS 75-05-8)	TWA	34 mg/m3
Ethyl alcohol (CAS 64-17-5)		20 ppm
	TWA	1900 mg/m3
Isobutyl alcohol (CAS 78-83-1)		1000 ppm
	TWA	150 mg/m3
Methacrylonitrile (CAS 126-98-7)		50 ppm
	TWA	3 mg/m3
Methanol (CAS 67-56-1)		1 ppm
	STEL	325 mg/m3
		250 ppm
	TWA	260 mg/m3
Methyl methacrylate (CAS 80-62-6)		200 ppm
	TWA	410 mg/m3
		100 ppm
Propionitrile (CAS 107-12-0)		14 mg/m3
	TWA	6 ppm

**Biological limit values****ACGIH Biological Exposure Indices**

Components	Value	Determinant	Specimen	Sampling Time
2-Butanone (CAS 78-93-3)	2 mg/l	MEK	Urine	*
4-Methyl-2-pentanone (CAS 108-10-1)	1 mg/l	Methyl isobutyl ketone	Urine	*
Methanol (CAS 67-56-1)	15 mg/l	Methanol	Urine	*

\* - For sampling details, please see the source document.

## Exposure guidelines

### US - California OELs: Skin designation

1,4-Dioxane (CAS 123-91-1)	Can be absorbed through the skin.
Acetonitrile (CAS 75-05-8)	Can be absorbed through the skin.
Methacrylonitrile (CAS 126-98-7)	Can be absorbed through the skin.
Methanol (CAS 67-56-1)	Can be absorbed through the skin.

### US - Minnesota Haz Subs: Skin designation applies

1,4-Dioxane (CAS 123-91-1)	Skin designation applies.
Acetonitrile (CAS 75-05-8)	Skin designation applies.
Methacrylonitrile (CAS 126-98-7)	Skin designation applies.
Methanol (CAS 67-56-1)	Skin designation applies.

### US - Tennessee OELs: Skin designation

1,4-Dioxane (CAS 123-91-1)	Can be absorbed through the skin.
Methacrylonitrile (CAS 126-98-7)	Can be absorbed through the skin.
Methanol (CAS 67-56-1)	Can be absorbed through the skin.

### US ACGIH Threshold Limit Values: Skin designation

1,4-Dioxane (CAS 123-91-1)	Can be absorbed through the skin.
Acetonitrile (CAS 75-05-8)	Can be absorbed through the skin.
Methacrylonitrile (CAS 126-98-7)	Can be absorbed through the skin.
Methanol (CAS 67-56-1)	Can be absorbed through the skin.

### US NIOSH Pocket Guide to Chemical Hazards: Skin designation

Methacrylonitrile (CAS 126-98-7)	Can be absorbed through the skin.
Methanol (CAS 67-56-1)	Can be absorbed through the skin.

### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

1,4-Dioxane (CAS 123-91-1)	Can be absorbed through the skin.
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### Appropriate engineering controls

Explosion-proof general and local exhaust 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. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Chemical respirator with organic vapor cartridge and full facepiece.

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

**Other** Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Respiratory protection** Chemical respirator with organic vapor cartridge and full facepiece.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

When using do not smoke. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

**Physical state** Liquid.

**Form** Liquid.

**Color** Not available.

**Odor** Not available.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** -144.04 °F (-97.8 °C) estimated

**Initial boiling point and boiling range** 148.46 °F (64.7 °C) estimated

**Flash point** 53.6 °F (12.0 °C) estimated

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

### Upper/lower flammability or explosive limits

Flammability limit - lower (%)	7.3 % estimated
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.

Vapor pressure 153.05 hPa estimated

Vapor density Not available.

Relative density Not available.

### Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature 867.2 °F (464 °C) estimated

Decomposition temperature Not available.

Viscosity Not available.

### Other information

Density 0.78656 g/cm3 estimated

Explosive properties Not explosive.

Flammability class Flammable IB estimated

Oxidizing properties Not oxidizing.

Percent volatile 99.97 % estimated

Specific gravity 0.79 estimated

VOC (Weight %) 90.38 % estimated

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** Hazardous polymerization does not occur.

**Conditions to avoid** Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

**Inhalation** Toxic if inhaled. May cause damage to organs by inhalation. May cause damage to organs through prolonged or repeated exposure by inhalation.

**Skin contact** Toxic in contact with skin.

**Eye contact** Causes serious eye irritation.

**Ingestion** Toxic if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Headache. Dizziness. Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

### Information on toxicological effects

**Acute toxicity** Toxic if inhaled. Toxic in contact with skin. Toxic if swallowed.

Components	Species	Test Results
1,4-Dioxane (CAS 123-91-1)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	7600 mg/kg
	Rat	> 8300 mg/kg
<b>Inhalation</b>		
LC50	Mouse	37 mg/l, 2 Hours
	Rat	46 mg/l, 2 Hours
<b>Oral</b>		
LD50	Cat	2000 mg/kg
	Dog	2100 mg/kg
	Guinea pig	3150 mg/kg
	Mouse	5700 mg/kg
	Rabbit	2000 mg/kg
	Rat	5150 mg/kg
		5.2 ml/kg
2-Butanone (CAS 78-93-3)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 8000 mg/kg
		> 10 ml/kg, 24 Hours
<b>Inhalation</b>		
LC50	Mouse	11000 ppm, 45 Minutes
	Rat	11700 ppm, 4 Hours
<b>Oral</b>		
LD50	Mouse	670 mg/kg
	Rat	2054 mg/kg
4-Methyl-2-pentanone (CAS 108-10-1)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 16000 mg/kg
<b>Inhalation</b>		
<i>Vapor</i>		
LC50	Rat	2000 - 4000 ppm, 4 Hours
LC50	Rat	8.2 mg/l, 4 Hours
<b>Oral</b>		
LD50	Rat	2080 mg/kg
		2.08 g/kg
Acetonitrile (CAS 75-05-8)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
		0.5 ml/kg
<b>Inhalation</b>		
<i>Vapor</i>		
LC100	Dog	16000 ppm, 4 Hours
LC50	Guinea pig	5655 ppm, 4 Hours
<i>Vapor</i>		
LC50	Mouse	3587 ppm, 4 Hours



Components	Species	Test Results
LC50	Mouse	2693 ppm, 1 Hours
<i>Vapor</i>		
LC50	Rabbit	2828 ppm, 4 Hours
LC50	Rat	7551 ppm
		7500 ppm, 8 Hours
		330 ppm, 90 Days
<b>Oral</b>		
LD50	Guinea pig	140 mg/kg
		0.177 ml/kg
	Mouse	469 mg/kg
		6.55 mmol/kg
	Rat	158 mg/kg
		1.68 - 4.49 ml/kg
Ethyl alcohol (CAS 64-17-5)		
<b><u>Acute</u></b>		
<b>Inhalation</b>		
LC50	Cat	85.41 mg/l, 4.5 Hours
		43.68 mg/l, 6 Hours
<i>Vapor</i>		
LC50	Mouse	> 60000 ppm
LC50	Mouse	79.43 mg/l, 134 Minutes
<i>Vapor</i>		
LC50	Rat	> 115.9 mg/l, 4 Hours
LC50	Rat	20000 ppm, 10 Hours
<i>Vapor</i>		
LC50	Rat	51.3 mg/l, 6 Hours
<b>Oral</b>		
LD50	Dog	5.5 g/kg
	Guinea pig	5.6 g/kg
	Monkey	6000 mg/kg
	Mouse	10500 ml/kg
	Pig	> 5000 mg/kg
	Rat	1187 - 2769 mg/kg
		10470 mg/kg
		7800 ml/kg
Ethyl ether (CAS 60-29-7)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 20000 mg/kg, 24 Hours
<b>Inhalation</b>		
<i>Vapor</i>		
LC50	Mouse	31300 ppm, 90 Minutes
LC50	Rat	32000 ppm, 4 Hours
<b>Oral</b>		
LD50	Rat	1200 mg/kg

Components	Species	Test Results
Ethyl methacrylate (CAS 97-63-2)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 9.1 g/kg
<b>Inhalation</b>		
LC50	Rat	55 mg/l, 4 Hours
<b>Oral</b>		
LD50	Mouse	7836 mg/kg
	Rat	13424 mg/kg
Isobutyl alcohol (CAS 78-83-1)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 2000 mg/kg, 24 Hours
<b>Inhalation</b>		
<i>Vapor</i>		
LC50	Rat	> 18.18 mg/l, 6 Hours
		> 6.5 mg/l, 4 Hours
LC50	Rat	8000 ppm, 4 Hours
LD50	Guinea pig	19.9 mg/l
	Rabbit	26.25 mg/l
	Rat	19.2 mg/l
<b>Oral</b>		
LD50	Rabbit	3040 mg/kg
	Rat	> 2830 mg/kg
		2.46 g/kg
Methacrylonitrile (CAS 126-98-7)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	0.32 ml/kg, 24 Hours
		0.32 - 0.35 mg/kg
	Rat	1.32 ml/kg, 24 Hours
<b>Inhalation</b>		
LC50	Guinea pig	88 ppm, 4 Hours
	Mouse	36 ppm, 4 Hours
	Rabbit	37 ppm, 4 Hours
	Rat	328 ppm, 4 Hours
<b>Oral</b>		
LD50	Mouse	20 - 25 mg/kg
		0.2553 mmol/kg
	Rat	64 mg/kg
		0.25 ml/kg
Methanol (CAS 67-56-1)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	15800 mg/kg
<b>Inhalation</b>		
LC50	Mouse	79.43 mg/l, 134 Minutes
	Rat	> 115.9 mg/l, 4 Hours

Components	Species	Test Results
		64000 ppm, 4 Hours
		82.1 mg/l, 6 Hours
<b>Oral</b>		
LD50	Monkey	6000 mg/kg
	Mouse	7300 mg/kg
	Pig	> 5000 mg/kg
	Rabbit	14.4 g/kg
	Rat	5628 mg/kg
<b>Other</b>		
LD50	Guinea pig	3556 mg/kg
	Hamster	8555 mg/kg
	Mouse	4100 mg/kg
	Rabbit	1826 mg/kg
	Rat	2131 mg/kg
Methyl methacrylate (CAS 80-62-6)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	> 5000 mg/kg, 24 Hours
<b>Inhalation</b>		
LC100	Guinea pig	17330 ppm, 4.5 Hours
	Mouse	16000 ppm, 4 Hours
		14860 ppm, 3 Hours
		61.8 mg/l, 3 Hours
	Rat	16000 ppm, 4 Hours
LC50	Mouse	9600 ppm, 1 Hours
		55 mg/l, 3 Hours
		18.5 mg/l, 2 Hours
	Rat	13500 ppm, 3 Hours
		11250 - 12500 ppm, 2 Hours
<i>Vapor</i>		
LC50	Rat	29.8 mg/l, 4 Hours
<b>Oral</b>		
LD50	Guinea pig	5900 mg/kg
	Mouse	5200 mg/kg
		5.5 ml/kg
	Rabbit	6550 mg/kg
	Rat	7900 mg/kg
Propionitrile (CAS 107-12-0)		
<b><u>Acute</u></b>		
<b>Dermal</b>		
LD50	Rabbit	210 mg/kg
<b>Inhalation</b>		
LC50	Mouse	163 mg/l, 60 Minutes
LD50	Rat	500 mg/l, 4 Hours
<b>Oral</b>		
LD50	Mouse	35.797 mg/kg

Components	Species	Test Results
	Rat	39 mg/kg

\* Estimates for product may be based on additional component data not shown.

<b>Skin corrosion/irritation</b>	Prolonged skin contact may cause temporary irritation.	
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.	
<b>Respiratory or skin sensitization</b>		
<b>ACGIH sensitization</b>		
Methyl methacrylate (CAS 80-62-6)	Sensitizer.	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.	
<b>Skin sensitization</b>	This product is not expected to cause skin sensitization.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
1,4-Dioxane (CAS 123-91-1)	2B Possibly carcinogenic to humans.	
4-Methyl-2-pentanone (CAS 108-10-1)	2B Possibly carcinogenic to humans.	
Ethyl ether (CAS 60-29-7)	3 Not classifiable as to carcinogenicity to humans.	
Methyl methacrylate (CAS 80-62-6)	3 Not classifiable as to carcinogenicity to humans.	
<b>US. National Toxicology Program (NTP) Report on Carcinogens</b>		
1,4-Dioxane (CAS 123-91-1)	Reasonably Anticipated to be a Human Carcinogen.	
<b>US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		
	Not listed.	
<b>Reproductive toxicity</b>	Suspected of damaging fertility or the unborn child.	
<b>Specific target organ toxicity - single exposure</b>	Causes damage to organs.	
<b>Specific target organ toxicity - repeated exposure</b>	Causes damage to organs through prolonged or repeated exposure.	
<b>Aspiration hazard</b>	Not an aspiration hazard.	
<b>Chronic effects</b>	Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.	

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.	
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Components	Species	Test Results
1,4-Dioxane (CAS 123-91-1)		
<b>Aquatic</b>		
Fish	LC50	Inland silverside (Menidia beryllina) 6700 mg/l, 96 hours
2-Butanone (CAS 78-93-3)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia magna) 4025 - 6440 mg/l, 48 hours
Fish	LC50	Sheepshead minnow (Cyprinodon variegatus) > 400 mg/l, 96 hours
4-Methyl-2-pentanone (CAS 108-10-1)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow (Pimephales promelas) 492 - 593 mg/l, 96 hours
Acetonitrile (CAS 75-05-8)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow (Pimephales promelas) > 100 mg/l, 96 hours
Ethyl alcohol (CAS 64-17-5)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia magna) 7.7 - 11.2 mg/l, 48 hours

Components	Species	Test Results
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) > 100 mg/l, 96 hours
Ethyl ether (CAS 60-29-7)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) 2560 mg/l, 96 hours
Isobutyl alcohol (CAS 78-83-1)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea ( <i>Daphnia pulex</i> ) 950 - 1200 mg/l, 48 hours
Fish	LC50	Bleak ( <i>Alburnus alburnus</i> ) 1000 - 3000 mg/l, 96 hours
Methanol (CAS 67-56-1)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea ( <i>Daphnia magna</i> ) > 10000 mg/l, 48 hours
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) > 100 mg/l, 96 hours
Methyl methacrylate (CAS 80-62-6)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) 136.3 - 183.4 mg/l, 96 hours
Propionitrile (CAS 107-12-0)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow ( <i>Pimephales promelas</i> ) 1450 - 1580 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

#### Bioaccumulative potential

##### Partition coefficient n-octanol / water (log Kow)

1,4-Dioxane	-0.27
2-Butanone	0.29
4-Methyl-2-pentanone	1.31
Acetonitrile	-0.34
Ethyl alcohol	-0.31
Ethyl ether	0.89
Ethyl methacrylate	1.94
Isobutyl alcohol	0.76
Methacrylonitrile	0.68
Methanol	-0.77
Methyl methacrylate	1.38
Propionitrile	0.16

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

#### US RCRA Hazardous Waste P List: Reference

Propionitrile (CAS 107-12-0) P101

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

<b>UN number</b>	UN1230
<b>UN proper shipping name</b>	Methanol, solution (Methanol RQ = 5537 LBS)
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	3
<b>Packing group</b>	II
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	IB2, T7, TP2
<b>Packaging exceptions</b>	150
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	242

### IATA

<b>UN number</b>	UN1230
<b>UN proper shipping name</b>	Methanol solution (Methanol)
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	6.1(PGI, II)
<b>Packing group</b>	II
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	3L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed.
<b>Cargo aircraft only</b>	Allowed.

### IMDG

<b>UN number</b>	UN1230
<b>UN proper shipping name</b>	METHANOL SOLUTION (Methanol)
<b>Transport hazard class(es)</b>	
<b>Class</b>	3
<b>Subsidiary risk</b>	6.1(PGI, II)
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-E, S-D
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

### DOT





## 15. Regulatory information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Not regulated.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

1,4-Dioxane (CAS 123-91-1)	Listed.
2-Butanone (CAS 78-93-3)	Listed.
4-Methyl-2-pentanone (CAS 108-10-1)	Listed.
Acetonitrile (CAS 75-05-8)	Listed.
Ethyl alcohol (CAS 64-17-5)	Listed.
Ethyl ether (CAS 60-29-7)	Listed.
Ethyl methacrylate (CAS 97-63-2)	Listed.
Isobutyl alcohol (CAS 78-83-1)	Listed.
Methacrylonitrile (CAS 126-98-7)	Listed.
Methanol (CAS 67-56-1)	Listed.
Methyl methacrylate (CAS 80-62-6)	Listed.
Propionitrile (CAS 107-12-0)	Listed.

#### SARA 304 Emergency release notification

Methacrylonitrile (CAS 126-98-7)	1000 LBS
Propionitrile (CAS 107-12-0)	10 LBS

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

Not listed.

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

<b>Hazard categories</b>	Immediate Hazard - Yes
	Delayed Hazard - Yes
	Fire Hazard - Yes
	Pressure Hazard - No
	Reactivity Hazard - No

#### SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Methacrylonitrile	126-98-7	1000	500 lbs		
Propionitrile	107-12-0	10	500 lbs		

**SARA 311/312 Hazardous chemical** No

#### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Methanol	67-56-1	89 - 90

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

1,4-Dioxane (CAS 123-91-1)
4-Methyl-2-pentanone (CAS 108-10-1)
Acetonitrile (CAS 75-05-8)
Methanol (CAS 67-56-1)
Methyl methacrylate (CAS 80-62-6)

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

Ethyl ether (CAS 60-29-7)
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Methacrylonitrile (CAS 126-98-7)

Propionitrile (CAS 107-12-0)

**Safe Drinking Water Act (SDWA)** Not regulated.

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

2-Butanone (CAS 78-93-3)	6714
4-Methyl-2-pentanone (CAS 108-10-1)	6715
Ethyl ether (CAS 60-29-7)	6584

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

2-Butanone (CAS 78-93-3)	35 %WV
4-Methyl-2-pentanone (CAS 108-10-1)	35 %WV
Ethyl ether (CAS 60-29-7)	35 %WV

**DEA Exempt Chemical Mixtures Code Number**

2-Butanone (CAS 78-93-3)	6714
4-Methyl-2-pentanone (CAS 108-10-1)	6715
Ethyl ether (CAS 60-29-7)	6584

**US state regulations**

**US - New Jersey RTK - Substances: Listed substance**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl alcohol (CAS 64-17-5)  
Ethyl ether (CAS 60-29-7)  
Ethyl methacrylate (CAS 97-63-2)  
Isobutyl alcohol (CAS 78-83-1)  
Methacrylonitrile (CAS 126-98-7)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

**US - Pennsylvania RTK - Hazardous Substances: Special hazard**

1,4-Dioxane (CAS 123-91-1)

**US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not listed.

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)

**US. Massachusetts RTK - Substance List**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl alcohol (CAS 64-17-5)  
Ethyl ether (CAS 60-29-7)  
Ethyl methacrylate (CAS 97-63-2)  
Isobutyl alcohol (CAS 78-83-1)  
Methacrylonitrile (CAS 126-98-7)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

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

1,4-Dioxane (CAS 123-91-1)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl ether (CAS 60-29-7)  
Methacrylonitrile (CAS 126-98-7)



Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

**US. Pennsylvania RTK - Hazardous Substances**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl alcohol (CAS 64-17-5)  
Ethyl ether (CAS 60-29-7)  
Ethyl methacrylate (CAS 97-63-2)  
Isobutyl alcohol (CAS 78-83-1)  
Methacrylonitrile (CAS 126-98-7)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

**US. Pennsylvania Worker and Community Right-to-Know Law**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl alcohol (CAS 64-17-5)  
Ethyl ether (CAS 60-29-7)  
Ethyl methacrylate (CAS 97-63-2)  
Isobutyl alcohol (CAS 78-83-1)  
Methacrylonitrile (CAS 126-98-7)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

**US. Rhode Island RTK**

1,4-Dioxane (CAS 123-91-1)  
2-Butanone (CAS 78-93-3)  
4-Methyl-2-pentanone (CAS 108-10-1)  
Acetonitrile (CAS 75-05-8)  
Ethyl ether (CAS 60-29-7)  
Ethyl methacrylate (CAS 97-63-2)  
Isobutyl alcohol (CAS 78-83-1)  
Methacrylonitrile (CAS 126-98-7)  
Methanol (CAS 67-56-1)  
Methyl methacrylate (CAS 80-62-6)  
Propionitrile (CAS 107-12-0)

**US. California Proposition 65**

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**

1,4-Dioxane (CAS 123-91-1)	Listed: January 1, 1988
4-Methyl-2-pentanone (CAS 108-10-1)	Listed: November 4, 2011
Ethyl alcohol (CAS 64-17-5)	Listed: April 29, 2011
	Listed: July 1, 1988

**US - California Proposition 65 - CRT: Listed date/Developmental toxin**

4-Methyl-2-pentanone (CAS 108-10-1)	Listed: March 28, 2014
Ethyl alcohol (CAS 64-17-5)	Listed: October 1, 1987
Methanol (CAS 67-56-1)	Listed: March 16, 2012

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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

<b>Issue date</b>	05-22-2015
<b>Version #</b>	01
<b>NFPA ratings</b>	Health: 4 Flammability: 3 Instability: 0

### Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

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