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Highly flammable liquid and vapor

**Precautionary Statements - Prevention**

Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Wear protective gloves/protective clothing/eye protection/face protection  
Keep cool

**Precautionary Statements - Response**

If exposed or concerned: Get medical advice/attention  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
Immediately call a POISON CENTER or doctor/physician  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth  
IN CASE OF FIRE: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Precautionary Statements - Storage**

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

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**WHMIS Classification**

Class B-Division 2 Class D-Division 2A Class D-Division 2B

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Tetrahydrofuran	109-99-9	Proprietary
Methyl ethyl ketone	78-93-3	Proprietary
Cyclohexanone	108-94-1	Proprietary
Acetone	67-64-1	Proprietary
PVC Resin	9002-86-2	Proprietary

\* The exact percentage (concentration) of composition has been withheld as a trade secret

### 4. FIRST-AID MEASURES

#### First Aid Measures

<b>General Advice</b>	If exposed or concerned: Get medical advice/attention.
<b>Eye Contact</b>	In case of irritation from airborne exposure, move to fresh air. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek immediate medical attention/advice.
<b>Skin Contact</b>	Take off contaminated clothing. Wash with soap and water. If symptoms persist, call a physician. Wash contaminated clothing before reuse.
<b>Inhalation</b>	Remove to fresh air. If symptoms persist, call a physician. If breathing is difficult, give oxygen. Seek immediate medical attention/advice.
<b>Ingestion</b>	Rinse mouth. Seek medical attention. If drowsy or unconscious, do not give anything by mouth; place individual on the left side with head down. Do not induce vomiting.

#### Most important symptoms and effects

<b>Symptoms</b>	Exposed individuals may experience eye tearing, redness and discomfort. Prolonged or repeated skin contact may result in dermatitis (red, dry skin). May cause nose and throat irritation, with possible central nervous system effects. Fatigue and weakness. May cause drowsiness or dizziness. Long term overexposure may cause liver and kidney damage.
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#### Indication of any immediate medical attention and special treatment needed

<b>Notes to Physician</b>	Treat symptomatically. Individuals with chronic respiratory, skin, kidney, or liver disorders may be at increased risk from exposure.
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### 5. FIRE-FIGHTING MEASURES

#### Suitable Extinguishing Media

Foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

**Unsuitable Extinguishing Media** Not determined.

#### Specific Hazards Arising from the Chemical

Class IB Flammable Liquid. Vapors may travel to source of ignition and flash back.

**Hazardous Combustion Products** Carbon oxides. Various hydrocarbon vapors and toxic gases.

#### Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

- Personal Precautions** Use personal protective equipment as required. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Persons not wearing proper personal protective equipment should be excluded from area of spill.
- Environmental Precautions** Do not allow into any sewer, on the ground or into any body of water.

### Methods and material for containment and cleaning up

- Methods for Containment** Prevent further leakage or spillage if safe to do so.
- Methods for Clean-Up** Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

- Advice on Safe Handling** Wash thoroughly after handling. Use personal protection recommended in Section 8. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Use only in well-ventilated areas. Ground/bond container and receiving equipment. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, solid) all hazard precautions given in the data sheet must be observed. Avoid prolonged contact with eyes, skin, and clothing. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

### Conditions for safe storage, including any incompatibilities

- Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Store containers upright. Store away from heat, sparks, flame.
- Incompatible Materials** Oxidizers. Acids. Bases.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Tetrahydrofuran 109-99-9	STEL: 100 ppm TWA: 50 ppm S*	TWA: 200 ppm TWA: 590 mg/m <sup>3</sup> (vacated) TWA: 200 ppm (vacated) TWA: 590 mg/m <sup>3</sup> (vacated) STEL: 250 ppm (vacated) STEL: 735 mg/m <sup>3</sup>	IDLH: 2000 ppm TWA: 200 ppm TWA: 590 mg/m <sup>3</sup> STEL: 250 ppm STEL: 735 mg/m <sup>3</sup>
Acetone 67-64-1	STEL: 750 ppm TWA: 500 ppm	TWA: 1000 ppm TWA: 2400 mg/m <sup>3</sup> (vacated) TWA: 750 ppm (vacated) TWA: 1800 mg/m <sup>3</sup> (vacated) STEL: 2400 mg/m <sup>3</sup> The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors (vacated) STEL: 1000 ppm	IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m <sup>3</sup>

Methyl ethyl ketone 78-93-3	STEL: 300 ppm TWA: 200 ppm	TWA: 200 ppm TWA: 590 mg/m <sup>3</sup> (vacated) TWA: 200 ppm (vacated) TWA: 590 mg/m <sup>3</sup> (vacated) STEL: 300 ppm (vacated) STEL: 885 mg/m <sup>3</sup>	IDLH: 3000 ppm TWA: 200 ppm TWA: 590 mg/m <sup>3</sup> STEL: 300 ppm STEL: 885 mg/m <sup>3</sup>
Cyclohexanone 108-94-1	STEL: 50 ppm TWA: 20 ppm S*	TWA: 50 ppm TWA: 200 mg/m <sup>3</sup> (vacated) TWA: 25 ppm (vacated) TWA: 100 mg/m <sup>3</sup> (vacated) S*	IDLH: 700 ppm TWA: 25 ppm TWA: 100 mg/m <sup>3</sup>
PVC Resin 9002-86-2	TWA: 1 mg/m <sup>3</sup> respirable fraction	-	-

**Appropriate engineering controls**

**Engineering Controls**

Apply technical measures to comply with the occupational exposure limits. Ventilation systems. Eyewash stations. Showers. Mechanical exhaust (explosion proof) may be required.

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

**Eye/Face Protection**

Splash goggles or safety glasses.

**Skin and Body Protection**

Rubber gloves. Use body protection appropriate for task.

**Respiratory Protection**

Not required under normal conditions. If recommended levels are exceeded, respiratory protection must be selected to assure compliance with OSHA Standard 29CFR 1910.134.

**General Hygiene Considerations**

Handle in accordance with good industrial hygiene and safety practice.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

<b>Physical State</b>	Liquid	<b>Odor</b>	Ether-like
<b>Appearance</b>	Liquid	<b>Odor Threshold</b>	0.88 ppm
<b>Color</b>	Blue		
<b>Property</b>	<b>Values</b>	<b>Remarks • Method</b>	
pH	Not available		
Melting Point/Freezing Point	-108 °C / -163 °F		
Boiling Point/Boiling Range	56 °C / 133 °F		
Flash Point	-20 °C / -4 °F		
Evaporation Rate	> 1.0	(butyl acetate = 1)	
Flammability (Solid, Gas)	n/a-liquid		
Upper Flammability Limits	12.8%		
Lower Flammability Limit	1.8%		
Vapour Pressure	190 mm Hg	@ 20°C (68°F)	
Vapor Density	2.5	(Air=1)	
Specific Gravity	0.910		
Water Solubility	Negligible		
Solubility in other solvents	Not determined		
Partition Coefficient	Not determined		
Auto-ignition Temperature	321 °C / 610 °F	Not determined	
Decomposition Temperature	Not determined		
Kinematic Viscosity	Not determined		
Dynamic Viscosity	Not determined		
Explosive Properties	Not determined		
Oxidizing Properties	Not determined		
VOC Content	Maximum VOC emissions when applied and tested per SCAQMD Rule 1168, Test Method 316A is <= 510 g/L		



Chemical Name	ACGIH	IARC	NTP	OSHA
Tetrahydrofuran 109-99-9	A3			
Cyclohexanone 108-94-1	A3	Group 3		
PVC Resin 9002-86-2		Group 3		

**Legend**

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 3 IARC components are "not classifiable as human carcinogens"

**STOT - single exposure** May cause respiratory irritation. May cause drowsiness or dizziness.

**Numerical measures of toxicity**

Not determined

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Category IV

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Tetrahydrofuran 109-99-9		1970 - 2360: 96 h Pimephales promelas mg/L LC50 flow-through 2700 - 3600: 96 h Pimephales promelas mg/L LC50 static		5930: 24 h Daphnia magna mg/L EC50
Acetone 67-64-1		4.74 - 6.33: 96 h Oncorhynchus mykiss mL/L LC50 6210 - 8120: 96 h Pimephales promelas mg/L LC50 static 8300: 96 h Lepomis macrochirus mg/L LC50	EC50 = 14500 mg/L 15 min	10294 - 17704: 48 h Daphnia magna mg/L EC50 Static 12600 - 12700: 48 h Daphnia magna mg/L EC50
Methyl ethyl ketone 78-93-3		3130 - 3320: 96 h Pimephales promelas mg/L LC50 flow-through	EC50 = 3403 mg/L 30 min EC50 = 3426 mg/L 5 min	520: 48 h Daphnia magna mg/L EC50 5091: 48 h Daphnia magna mg/L EC50 4025 - 6440: 48 h Daphnia magna mg/L EC50 Static
Cyclohexanone 108-94-1	20: 96 h Chlorella vulgaris mg/L EC50	481 - 578: 96 h Pimephales promelas mg/L LC50 flow- through 8.9: 96 h Pimephales promelas mg/L LC50	EC50 = 18.5 mg/L 5 min EC50 = 21.3 mg/L 10 min EC50 = 25 mg/L 5 min	800: 24 h Daphnia magna mg/L EC50

**Persistence/Degradability**

Not determined.

**Bioaccumulation**

Not determined.

**Mobility**

Chemical Name	Partition Coefficient
Tetrahydrofuran 109-99-9	0.45
Methyl ethyl ketone 78-93-3	0.29
Cyclohexanone 108-94-1	0.86

Acetone 67-64-1	-0.24
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**Other Adverse Effects**

Not determined

**13. DISPOSAL CONSIDERATIONS**

**Waste Treatment Methods**

**Disposal of Wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated Packaging** Disposal should be in accordance with applicable regional, national and local laws and regulations.

**US EPA Waste Number**

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Tetrahydrofuran 109-99-9				U213
Acetone 67-64-1		Included in waste stream: F039		U002
Methyl ethyl ketone 78-93-3	U159	Included in waste streams: F005, F039	200.0 mg/L regulatory level	U159
Cyclohexanone 108-94-1		Included in waste stream: F039		U057

**California Hazardous Waste Status**

Chemical Name	California Hazardous Waste Status
Tetrahydrofuran 109-99-9	Toxic Ignitable
Methyl ethyl ketone 78-93-3	Toxic Ignitable
Acetone 67-64-1	Ignitable

**14. TRANSPORT INFORMATION**

**Note** Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. Shipments of containers holding 5 Liters or less per inner packaging may qualify for a "Limited Quantity" exception. Refer to 49 CFR 173.150 for additional information.

**DOT**

**UN/ID No** UN1133  
**Proper Shipping Name** Adhesives  
**Hazard Class** 3  
**Packing Group** II

**IATA**

**UN/ID No** UN1133  
**Proper Shipping Name** Adhesives  
**Hazard Class** 3  
**Packing Group** II



**IMDG**

<b>UN/ID No</b>	UN1133
<b>Proper Shipping Name</b>	Adhesives
<b>Hazard Class</b>	3
<b>Packing Group</b>	II
<b>Marine Pollutant</b>	No

<b>15. REGULATORY INFORMATION</b>
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**International Inventories**

<b>TSCA</b>	Listed
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**Legend:**

*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory*

*DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List*

*EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*

*ENCS - Japan Existing and New Chemical Substances*

*IECSC - China Inventory of Existing Chemical Substances*

*KECL - Korean Existing and Evaluated Chemical Substances*

*PICCS - Philippines Inventory of Chemicals and Chemical Substances*

**US Federal Regulations****CERCLA**

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Tetrahydrofuran 109-99-9	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Methyl ethyl ketone 78-93-3	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
Cyclohexanone 108-94-1	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
Acetone 67-64-1	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

**SARA 313**

Not determined

**US State Regulations****California Proposition 65**

This product may contain trace levels of chemicals known to the State of California to cause cancer. Exposure to these chemicals above the State of California 'No Significant Risk Level' is unlikely under normal use conditions.

**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Tetrahydrofuran 109-99-9	X	X	X
Acetone 67-64-1	X	X	X
Methyl ethyl ketone 78-93-3	X	X	X
Cyclohexanone 108-94-1	X	X	X

