CertainTeed
SAINT-GOBAIN

‡

(Material) Safety Data Sheet

Section 1 - Product and Company Identification

Material Name ▪ **CertaSpray® B-Side (Closed Cell Winter)**

Chemical Name ▪ Mixture

MSDS Number ▪ CT-10154-1

Product Description ▪ Liquid

Product Use ▪ Component of a polyurethane system.

Manufacturer ▪ CertainTeed Corporation
750 E. Swedesford Road
P.O. Box 860 Valley Forge, PA 19482-0105
United States
www.certainteed.com
CertainTeed-EHS@saintgobain.com

Telephone

General ▪ 610-341-7000

Emergency ▪ 800-424-9300

Preparation Date ▪ 06/08/2010

Last Revision Date ▪ 10/19/2011

Product Literature Number ▪ 3 0 - 5 0 - 0 5 4

Key to abbreviations

‡ = HMIS is a registered trademark of the American Coatings Association

Section 2 - Hazards Identification

Emergency Overview

DANGER

Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. May cause drowsiness or dizziness. May damage fertility or the unborn child via ingestion.

Prevention Avoid breathing dust, fume, gas, mist, vapours and/or spray. Wash thoroughly after handling. Wear protective gloves, clothing, and eye/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep container tightly closed. Use only outdoors or in a well-ventilated area.

Response IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If eye irritation persists: Get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a postion comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Storage/Disposal Store in a well-ventilated place. Keep container tighly closed. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Physical Form	▪ Liquid
Color	▪ No data available.
Odor	▪ No data available.
Flash Point	▪ > 230 F(> 110 C)
OSHA	▪ Irritant
WHMIS	▪ Class D - Poisonous and Infectious Materials - Division 2 - Subdivision A, Class D - Poisonous and Infectious Materials - Division 2 - Subdivision B
	
GHS	▪ Specific Target Organ Toxicity Single Exposure - Category 3, Skin Corrosion/Irritation - Category 2, Serious Eye Damage, Eye Irritation - Category 2A, Toxic to Reproduction - Category 1 A/B
Route Of Entry	▪ Inhalation, Skin, Eye, Ingestion
Target Organs	▪ Central Nervous System (CNS)
Medical Conditions Aggravated by Exposure	▪ Eye, Skin, Lungs, Central Nervous System (CNS), Kidney

Potential Health Effects

Inhalation

Acute (Immediate) ▪ May cause irritation. Exposure to high vapor concentrations of Propane, 1,1,1,3,3-pentafluoro- has caused the following symptoms: giddiness, weakness, dizziness, nausea and unconsciousness. Exposure to Propane, 1,1,1,3,3-pentafluoro- can also result in cardiac sensitization to epinephrine-like compounds which can result in fatal cardiac arrhythmias.

Chronic (Delayed) ▪ No data available.

Skin

Acute (Immediate) ▪ May cause irritation.

Chronic (Delayed) ▪ Ethylene glycol has been found to cause skin sensitization in humans.

Eye

Acute (Immediate) ▪ May cause irritation. Amine catalysts are alkaline in nature and their vapors are irritating to the eyes, even at low air concentrations. Such concentrations can cause corneal swelling without pain manifested by visual disturbances such as blurred or “foggy” vision with a blue tint (“blue haze”) and sometimes a halo phenomenon around lights. These symptoms are transient and upon cessation of exposure, usually disappear within hours, or longer depending on the duration and extent of exposure. Exposure to higher vapor concentration or direct contact with the liquid amine may cause severe irritation and tissue injury, with symptoms like burning, discomfort, involuntary closing of the eyelids, redness, and tearing. Contact with droplets or mists of amine catalysts may result in mechanical irritation, pain, and permanent corneal injury.

Chronic (Delayed) ▪ No data available.

Ingestion

Acute (Immediate) ▪ May cause irritation.

Chronic (Delayed) ▪ Ingestion of ethylene glycol has caused kidney damage in monkeys and mice.

Mutagenic Effects

- No information available for the product. Human mutation test data has been reported for ethylene glycol. Mutation test data has been reported for fruit flies and bacteria for phosphoric acid, triethyl ester component.

Carcinogenic Effects

- No carcinogenic effects expected however, this material contains trace amounts of components known to have carcinogenic effects.

Carcinogenic Effects				
	CAS	IARC	NTP	OSHA
Formaldehyde	50-00-0	Group 1-Carcinogenic	Reasonably Anticipated to be Human Carcinogen	Specifically Regulated Carcinogen
p-Dioxane	123-91-1	Group 2B-Possible Carcinogen	Evidence of Carcinogenicity Reasonably Anticipated to be Human Carcinogen	Not established

Reproductive Effects

- Repeated and prolonged exposure may cause reproductive effects. Ethylene glycol has been shown to cause reproductive effects in rats by ingestion and inhalation. Ingestion of hexanoic acid, 2-ethyl-, potassium salt (1:1) has been shown to cause birth deffects and delayed post-natal development in rats.

Potential Environmental Effects

- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 12 for Ecological Information.

Section 3 - Composition/Information on Ingredients

Hazardous Components						
Chemical Name	**CAS**	**%(weight)**	**UN;EINECS**	**LD50/LC50**	**EU Classification & R Phrases**	**Other**
Propane, 1,1,1,3,3-pentafluoro-	460-73-1	7% TO 13%	NDA	NDA	NDA	NDA
1,3-Propanediamine, N1,N1-bis[3-(dimethylamino)propyl]-N3,N3-dimethyl-	33329-35-0	1% TO 3%	251-459-0	NDA	NDA	NDA
1,3-Propanediamine, N1-[3-(dimethylamino) propyl]-N1,N3,N3-trimethyl-	3855-32-1	1% TO 3%	223-362-3	NDA	NDA	NDA
1-Hexadecanamine, N,N-dimethyl-	112-69-6	1% TO 3%	203-997-2	NDA	NDA	NDA
2-Propanol, 1-chloro-, 2,2',2''-phosphate	13674-84-5	1% TO 3%	237-158-7	orl-rat LD50:1500 mg/kg	NDA	NDA
Phosphoric acid, triethyl ester	78-40-0	1% TO 3%	201-114-5	orl-rat LD50:1165 mg/kg	Xn; R22	NDA
1,2-Ethanediol	107-21-1	0.1% TO 1%	203-473-3	skn-rbt LD50:9530 uL/kg orl-rat LD50:4700 mg/kg	Xn; R22	NDA
Hexanoic acid, 2-ethyl-, potassium salt (1:1)	3164-85-0	0.1% TO 1%	221-625-7	NDA	NDA	NDA

Non-HazardousComponents						
Chemical Name	**CAS**	**%(weight)**	**UN;EINECS**	**LD50/LC50**	**EU Classification & R Phrases**	**Other**
Polyester polyol	*Proprietary*	30% TO 60%	*Proprietary*	NDA	NDA	NDA
Polyether polyol blend	*Proprietary*	13% TO 30%	*Proprietary*	NDA	NDA	NDA

According to the Globally Harmonized Standard for Classification and Labeling (GHS) this product is considered Hazardous. In Canada, the product mentioned above is considered Hazardous under the Workplace Hazardous Materials Information System (WHMIS). Under United States Regulations (29 CFR 1900.1200 - Hazard Communication Standard) this product is considered Hazardous.

See Section 11 for Toxicological Information.

Section 4 - First Aid Measures

Inhalation
- Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or poison control center.

Skin
- Rinse skin immediately with plenty of water for 15-20 minutes. Take off contaminated clothing. Wash contaminated clothing before reuse. Call a physician or poison control center.

Eye
- Flush eyes with water for at least 15 minutes while holding eyelids open. If easy to do, remove contact lenses, if worn. Call a physician or poison control center.

Ingestion
- If swallowed, rinse mouth with water (only if the person is conscious) Move exposed person to fresh air. Do not induce vomiting unless directed to do so by medical personnel. Do not give anything by mouth to an unconscious person.

Notes to Physician	▪ Adrenalin and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest. Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours as delayed pulmonary edema may develop. Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

See Section 2 for Potential Health Effects.

Section 5 - Fire Fighting Measures

Extinguishing Media	▪ LARGE FIRES: Water spray, fog or alcohol-resistant foam. SMALL FIRES: Dry chemical, CO2, water spray or regular foam.
Unsuitable Extinguishing Media	▪ None known.
Firefighting Procedures	▪ LARGE FIRES: Move containers from fire area if you can do it without risk. LARGE FIRES: Dike fire control water for later disposal; do not scatter the material. LARGE FIRES: Do not get water inside containers. FIRES INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. FIRES INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. FIRES INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire. FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
Unusual Fire and Explosion Hazards	▪ Do not expose to high temperatures or open flames. Containers may explode when heated.
Hazardous Combustion Products	▪ None known.
Protection of Firefighters	▪ Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Flash Point	▪ > 230 F(> 110 C) STCC (Seta Test/Seta Flash Closed Cup)

Section 6 - Accidental Release Measures

Personal Precautions	▪ Evacuate surrounding areas. Do not touch or walk through spilled material. Do not breathe vapor or mist. Ventilate enclosed areas. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Emergency Procedures	▪ Eliminate all ignition sources. Stop leak if you can do it without risk. As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
Environmental Precautions	▪ Do not allow material or runoff to contact soil or enter waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air). Runoff from fire control or dilution water may cause pollution.
Containment/Clean-up Measures	▪ Stop leak if you can do it without risk. Move containers from spill area. Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in suitable container. Do not flush to sewer or allow to enter waterways.
Prohibited Materials	▪ No data available.

Section 7 - Handling and Storage

Handling

- Put on appropriate personal protective equipment. Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid exposure during pregnancy. Do not breathe (dust, vapor or spray mist) Wear appropriate respirator when ventilation is inadequate.

Storage

- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials(see section 10) and food and drink. It is recommended that the product drums be stored between 55-80 F. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store locked up.

Special Packaging Materials

- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink.

Incompatible Materials or Ignition Sources

- No data available.

Section 8 - Exposure Controls/Personal Protection

Personal Protective Equipment

Pictograms

- 

Respiratory

- Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.

Eye/Face

- Wear splash goggles.

Hands

- Chemical-resistant, impervious gloves should be worn at all times when handling this product.

Skin/Body

- Wear lab coat or other protective overgarment. Base the choice of protection on the job activity and potential for skin contact.

General Industrial Hygiene Considerations

Engineering Measures/Controls

- In accordance with good industrial hygiene practices, precautions should be taken to avoid contact. If contact occurs, wash hands, face and other potentially exposed areas immediately after handling material (especially before eating, drinking, or smoking).

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada British Columbia**	**Canada Manitoba**	**Canada New Brunswick**	**Canada Northwest Territories**
p-Dioxane (123-91-1)	TWAs	20 ppm TWA	20 ppm TWA	20 ppm TWA	25 ppm TWA; 90 mg/m3 TWA	25 ppm TWA; 90 mg/m3 TWA
	STELs	Not established	Not established	Not established	Not established	100 ppm STEL; 360 mg/m3 STEL
Formaldehyde (50-00-0)	Ceilings	0.3 ppm Ceiling	1 ppm Ceiling	0.3 ppm Ceiling	Not established	2 ppm Ceiling; 2.4 mg/m3 Ceiling
	TWAs	Not established	0.3 ppm TWA	Not established	0.5 ppm TWA	Not established
	STELs	Not established	Not established	Not established	1.5 ppm STEL	Not established
1,2-Ethanediol (107-21-1)	Ceilings	100 mg/m3 Ceiling (aerosol only)	100 mg/m3 Ceiling (aerosol); 50 ppm Ceiling	100 mg/m3 Ceiling (aerosol only)	100 mg/m3 Ceiling (aerosol)	50 ppm Ceiling (vapour); 127 mg/m3 Ceiling (vapour)
	STELs	Not established	20 mg/m3 STEL	Not established	Not established	20 mg/m3 STEL
	TWAs	Not established	10 mg/m3 TWA (particulate)	Not established	Not established	10 ppm TWA (particulate)

Exposure Limits/Guidelines (Con't.)						
	Result	**Canada Nova Scotia**	**Canada Nunavut**	**Canada Ontario**	**Canada Quebec**	**Canada Yukon**
p-Dioxane (123-91-1)	TWAs	20 ppm TWA	25 ppm TWA; 90 mg/m3 TWA	20 ppm TWAEV	20 ppm TWAEV; 72 mg/m3 TWAEV	50 ppm TWA; 180 mg/m3 TWA
	STELs	Not established	100 ppm STEL; 360 mg/m3 STEL	Not established	Not established	50 ppm STEL; 180 mg/m3 STEL
	Ceilings	Not established	Not established	Not established	Not established	Not established
Formaldehyde (50-00-0)	Ceilings	0.3 ppm Ceiling	2 ppm Ceiling; 2.4 mg/m3 Ceiling	1.5 ppm CEV	2 ppm Ceiling; 3 mg/m3 Ceiling	2 ppm Ceiling; 3 mg/m3 Ceiling
	STELs	Not established	Not established	1.0 ppm STEV	Not established	Not established
	TWAs	Not established	Not established	Not established	Not established	Not established
1,2-Ethanediol (107-21-1)	Ceilings	100 mg/m3 Ceiling (aerosol only)	50 ppm Ceiling (vapour); 127 mg/m3 Ceiling (vapour)	100 mg/m3 CEV	50 ppm Ceiling (mist and vapour); 127 mg/m3 Ceiling (mist and vapour)	Not established
	STELs	Not established	20 mg/m3 STEL (particulate)	Not established	Not established	10 ppm STEL (particulate); 20 mg/m3 STEL (particulate); 125 ppm STEL (vapour); 325 mg/m3 STEL (vapour)
	TWAs	Not established	10 mg/m3 TWA (particulate)	Not established	Not established	10 mg/m3 TWA (particulate); 100 ppm TWA (vapour); 250 mg/m3 TWA (vapour)

Exposure Limits/Guidelines (Con't.)					
	Result	**NIOSH**	**OSHA**	**OSHA Vacated**	**United States - California**
p-Dioxane (123-91-1)	TWAs	Not established	100 ppm TWA; 360 mg/m3 TWA	25 ppm TWA; 90 mg/m3 TWA	25 ppm PEL; 90 mg/m3 PEL
	Ceilings	1 ppm Ceiling (30 min); 3.6 mg/m3 Ceiling (30 min)	Not established	Not established	Not established
Formaldehyde (50-00-0)	STELs	Not established	2 ppm STEL (see 29 CFR 1910.1048)	10 ppm STEL (unless specified in 1910.1048, 30 min)	2 ppm STEL
	TWAs	0.016 ppm TWA	0.75 ppm TWA	3 ppm TWA (unless specified in 1910.1048)	0.75 ppm PEL
	Ceilings	0.1 ppm Ceiling (15 min)	Not established	5 ppm Ceiling (unless specified in 1910.1048)	Not established
1,2-Ethanediol (107-21-1)	Ceilings	Not established	Not established	50 ppm Ceiling; 125 mg/m3 Ceiling	40 ppm Ceiling (vapor); 100 mg/m3 Ceiling (vapor)
	TWAs	Not established	Not established	Not established	40 ppm PEL (vapor); 100 mg/m3 PEL (vapor)

Exposure Control Notations

United States - California

▪p-Dioxane (123-91-1): **Skin:** (material may be absorbed through the skin, eyes or mucous membrane)

Canada British Columbia

▪p-Dioxane (123-91-1): **Carcinogens:** (IARC Category 2B - Possible Human Carcinogen) | **Designated Substances:** (IARC Category 2B - Possible Human Carcinogen) | **Skin:** (Skin notation)

▪Formaldehyde (50-00-0): **Carcinogens:** (ACGIH Category A2 - Suspected Human Carcinogen; IARC Category 1 - Human Carcinogen) | **Designated Substances:** (ACGIH Category A2 - Suspected Human Carcinogen; IARC Category 1 - Human Carcinogen; Sensitizer) | **Sensitizers:** (Sensitizer)

Canada Manitoba

▪p-Dioxane (123-91-1): **Carcinogens:** (A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans) | **Skin:** (Skin - potential significant contribution to overall exposure by the cutaneous route)

▪Formaldehyde (50-00-0): **Carcinogens:** (A2 Suspected Human Carcinogen)

▪1,2-Ethanediol (107-21-1): **Carcinogens:** (A4 Not Classifiable as a Human Carcinogen)

Canada New Brunswick

▪p-Dioxane (123-91-1): **Carcinogens:** (A3 - Animal Carcinogen) | **Skin:** (Skin - potential for cutaneous absorption)

▪Formaldehyde (50-00-0): **Carcinogens:** (A2 - Suspected Human Carcinogen)

▪1,2-Ethanediol (107-21-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

Canada Northwest Territories

▪p-Dioxane (123-91-1): **Skin:** (Skin notation)

Canada Nova Scotia

▪p-Dioxane (123-91-1): **Carcinogens:** (A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans) | **Skin:** (Skin - potential significant contribution to overall exposure by the cutaneous route)

▪Formaldehyde (50-00-0): **Carcinogens:** (A2 - Suspected Human Carcinogen) | **Sensitizers:** (Sensitizer)

▪1,2-Ethanediol (107-21-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

Canada Nunavut

▪p-Dioxane (123-91-1): **Skin:** (Skin notation)

Canada Ontario

▪p-Dioxane (123-91-1): **Skin:** (Absorption through skin, eyes, or mucous membranes)

Canada Quebec

▪p-Dioxane (123-91-1): **Carcinogens:** (C3 carcinogen - effect detected in animals) | **Skin:** (Skin designation)

▪Formaldehyde (50-00-0): **Carcinogens:** (C2 carcinogen - effect suspected in humans)

Canada Yukon

▪p-Dioxane (123-91-1): **Skin:** (Skin notation)

OSHA

▪p-Dioxane (123-91-1): **Skin:** (prevent or reduce skin absorption)

ACGIH

▪p-Dioxane (123-91-1): **Carcinogens:** (A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans) | **Skin:** (Skin - potential significant contribution to overall exposure by the cutaneous route)

▪Formaldehyde (50-00-0): **Carcinogens:** (A2 - Suspected Human Carcinogen) | **Sensitizers:** (Sensitizer)

▪1,2-Ethanediol (107-21-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

OSHA Vacated

▪p-Dioxane (123-91-1): **Skin:** (Prevent or reduce skin absorption)

Exposure Limits Supplemental

ACGIH

▪p-Dioxane (123-91-1): **TLV Basis - Critical Effects:** (liver damage)

▪Formaldehyde (50-00-0): **TLV Basis - Critical Effects:** (eye and upper respiratory tract irritation)

▪1,2-Ethanediol (107-21-1): **TLV Basis - Critical Effects:** (eye and upper respiratory tract irritation)

Environmental Exposure Controls

- No data available.

Key to abbreviations

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures.

STEL = Short Term Exposure Limits are based on 15-minute exposures.

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

TWAEV = Time-Weighted Average Exposure Value

CEV = Ceiling exposure value; is the maximum airborne concentration of a biological or chemical agent to which a worker is exposed at any time

Section 9 - Physical and Chemical Properties

Physical Form

- Liquid

Appearance/Description

- Liquid

Color : No data available.		**Odor** : No data available.	
Taste : No data available.		**Odor Threshold** : NDA	
Boiling Point:	NDA	**Vapor Pressure:**	NDA
Melting Point:	NDA	**Vapor Density:**	NDA
Specific Gravity:	1.2	**Evaporation Rate:**	NDA
Density:	10.014 lbs/gal	**VOC (Wt.):**	17.6 %
Bulk Density:	NDA	**VOC (Vol.):**	NDA
Water Solubility:	NDA	**Volatiles (Wt.):**	NDA
Solvent Solubility:	NDA	**Volatiles (Vol.):**	NDA
Viscosity:	1350 Centipoise (cPs, cP) or mPas	**Flash Point:**	> 230 F(> 110 C)
Half-Life:	NDA	**Flash Point Test Type:**	STCC (Seta Test/Seta Flash Closed Cup)
Octanol/Water Partition coefficient:	NDA	**UEL:**	NDA
Coefficient of Water:	NDA	**LEL:**	NDA
Bioaccumulation Factor:	NDA	**Autoignition:**	NDA
pH:	NDA		

Section 10 - Stability and Reactivity

Stability ▪ Stable

Hazardous Polymerization ▪ Hazardous polymerization will not occur.

Conditions to Avoid ▪ No data available.

Incompatible Materials ▪ Oxidizing materials, organic materials, metals, acids and alkalis.

Hazardous Decomposition Products ▪ Carbon dioxide, Carbon monoxide, Nitrogen oxides, Phosphorus oxides, Halogenated compounds.

Section 11 - Toxicological Information

This product has not been tested as a separate entity. Therefore, the hazards must be evaluated on the basis of the individual ingredients, and those hazards must be assumed to be additive in the absence of complete information.

Component Name	Concentration	CAS	Data
1-Hexadecanamine, N,N-dimethyl-	1% TO 3%	112-69-6	**Acute Toxicity:** -oral-rat LD50:>3 gm/kg
2-Propanol, 1-chloro-, 2,2',2''-phosphate	1% TO 3%	13674-84-5	**Acute Toxicity:** -oral-rat LD50:1500 mg/kg
Phosphoric acid, triethyl ester	1% TO 3%	78-40-0	**Acute Toxicity:** -oral-rat LD50:1165 mg/kg; **Irritation:** eye-rbt 100 mg MOD
1,2-Ethanediol	0.1% TO 1%	107-21-1	**Acute Toxicity:** -oral-rat LD50:4700 mg/kg; -oral-hmn LDLo:1.43 mL/kg

Exposure to high vapor concentrations of Propane, 1,1,1,3,3-pentafluoro- has caused the following symptoms: giddiness, weakness, dizziness, nausea and unconsciousness. Exposure to Propane, 1,1,1,3,3-pentafluoro- can also result in cardiac sensitization to epinephrine-like compounds which can result in fatal cardiac arrhythmias. Ethylene glycol has been found to cause skin sensitization in humans. Ingestion of ethylene glycol has caused kidney damage in monkeys and mice.

Key to abbreviations

LD = Lethal Dose

MOD = Moderate

Section 12 - Ecological Information

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Test Type	Dosage	Units	Species	Species Description	Duration	Results	Component Information
Aquatic Toxicity	> 1000	mg/L	Fish		96 Hour (s)	LC50	Phosphoric acid, triethyl ester
Aquatic Toxicity	= 35	mg/L	Fish		96 Hour (s)	LC50	2-Propanol, 1-chloro-,2,2',2''-phosphate
Aquatic Toxicity	= 0.18	mg/L	Fish		96 Hour (s)	LC50	1-Hexanedecanamine, N,N-dimethyl-
Aquatic Toxicity	> 100	mg/L	Crustacea		48 Hour (s)	EC50	1,3-Propanediamine, N1-[3-(dimethylamino)propyl]-N1,N3,N3-trimethyl-
Aquatic Toxicity	> 100	mg/L	Algae or other aquatic plants		72 Hour (s)	IC50	1,3-Propanediamine, N1-[3-(dimethylamino)propyl]-N1,N3,N3-trimethyl-
Aquatic Toxicity	> 100	mg/L	Fish		96 Hour (s)	LC50	1,3-Propanediamine, N1-[3-(dimethylamino)propyl]-N1,N3,N3-trimethyl-

Ecological Fate ▪ No information available for the product.

Persistence/Degradability ▪ No information available for the product.

Bioaccumulation Potential ▪ No information available for the product.

Mobility in Soil ▪ No information available for the product.

Section 13 - Disposal Considerations

Product

- The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. All wastes containing the material should be properly labeled. Dispose of any waste residues according to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator.

Packaging

- Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way.

Section 14 - Transportation Information

DOT - United States - Department of Transportation

Shipping Name: Not Regulated

ID Number: NA

TDG - Canada - Transport of Dangerous Goods

Shipping Name: Not Regulated

ID Number: NA

Section 15 - Regulatory Information

SARA Hazard Classifications

- Acute, Chronic

State Right To Know					
Component	**CAS**	**MA**	**MN**	**NJ**	**PA**
1,2-Ethanediol	107-21-1	Yes	Yes	Yes	Yes
1,3-Propanediamine, N1,N1-bis[3-(dimethylamino) propyl]-N3,N3-dimethyl-	33329-35-0	No	No	No	No
1,3-Propanediamine, N1-[3-(dimethylamino) propyl]-N1,N3,N3-trimethyl-	3855-32-1	No	No	No	No
1-Hexadecanamine, N,N-dimethyl-	112-69-6	No	No	No	No
2-Propanol, 1-chloro-, 2,2',2''-phosphate	13674-84-5	No	No	No	No
Formaldehyde	50-00-0	Yes	Yes	Yes	Yes
Hexanoic acid, 2-ethyl-, potassium salt (1:1)	3164-85-0	No	No	No	No
p-Dioxane	123-91-1	Yes	Yes	Yes	Yes
Phosphoric acid, triethyl ester	78-40-0	No	No	No	No
Propane, 1,1,1,3,3-pentafluoro-	460-73-1	No	No	No	No

Inventory			
Component	**CAS**	**Canada DSL**	**TSCA**
1,2-Ethanediol	107-21-1	Yes	Yes
1,3-Propanediamine, N1,N1-bis[3-(dimethylamino) propyl]-N3,N3-dimethyl-	33329-35-0	Yes	Yes
1,3-Propanediamine, N1-[3-(dimethylamino) propyl]-N1,N3,N3-trimethyl-	3855-32-1	Yes	Yes
1-Hexadecanamine, N,N-dimethyl-	112-69-6	Yes	Yes
2-Propanol, 1-chloro-, 2,2',2''-phosphate	13674-84-5	Yes	Yes
Formaldehyde	50-00-0	Yes	Yes
Hexanoic acid, 2-ethyl-, potassium salt (1:1)	3164-85-0	Yes	Yes
p-Dioxane	123-91-1	Yes	Yes
Phosphoric acid, triethyl ester	78-40-0	Yes	Yes
Propane, 1,1,1,3,3-pentafluoro-	460-73-1	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- p-Dioxane 123-91-1 na B2, D2A, D2B
- Formaldehyde 50-00-0 na A, B1, D1A, D2A, D2B; B3, D1A, D2A, D2B, E (regulated under Formol)

Canada - WHMIS - Ingredient Disclosure List

- p-Dioxane 123-91-1 na 0.1 %
- Formaldehyde 50-00-0 na 0.1 %
- 1,2-Ethanediol 107-21-1 0.1% TO 1% 1 %

Environment

Canada - CEPA - Priority Substances List

- Formaldehyde 50-00-0 na Priority Substance List 2 (substance considered toxic)
- 1,2-Ethanediol 107-21-1 0.1% TO 1% Priority Substance List 2 (substance proposed to be considered toxic)

Canada Ontario

Environment

Canada - Ontario - Airborne Contaminant Reporting - Table 2A

None Listed

Canada - Ontario - Airborne Contaminant Reporting - Table 2B

None Listed

Canada - Ontario - Ozone Depleting Substances - Solvents - Class 1

None Listed

Canada - Ontario - Ozone Depleting Substances - Solvents - Class 2

None Listed

Canada - Ontario - Ozone Depleting Substances - Solvents - Class 3

None Listed

Canada Yukon

Environment

Canada - Yukon - Ozone Depleting Substances and Other Halocarbons

• Propane, 1,1,1,3,3-pentafluoro-	460-73-1	7% TO 13%	Class III Ozone Depleting Substance

Mexico

Other

Mexico - Hazard Classifications

• p-Dioxane	123-91-1	na	Class = 3
• Formaldehyde	50-00-0	na	Class = 3, 8 UN1198; Class = 8 UN2209

Mexico - Regulated Substances

• p-Dioxane	123-91-1	na	UN1165
• Formaldehyde	50-00-0	na	UN1198 (solution, flammable); UN2209 (solution, with not less than 25% formaldehyde)

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Formaldehyde	50-00-0	na	1000 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

• Formaldehyde	50-00-0	na	2 ppm STEL (Irritant and potential cancer hazard, See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level; 0.75 ppm TWA

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• p-Dioxane	123-91-1	na
• Formaldehyde	50-00-0	na
• 1,2-Ethanediol	107-21-1	0.1% TO 1%

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• p-Dioxane	123-91-1	na	100 lb final RQ; 45.4 kg final RQ
• Formaldehyde	50-00-0	na	100 lb final RQ; 45.4 kg final RQ
• 1,2-Ethanediol	107-21-1	0.1% TO 1%	5000 lb final RQ; 2270 kg final RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Formaldehyde	50-00-0	na	100 lb EPCRA RQ

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• p-Dioxane	123-91-1	na	0.1 % de minimis concentration •
Formaldehyde	50-00-0	na	0.1 % de minimis concentration •
1,2-Ethanediol	107-21-1	0.1% TO 1%	1.0 % de minimis concentration

U.S. - CWA (Clean Water Act) - Hazardous Substances

• Formaldehyde	50-00-0	na

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• p-Dioxane	123-91-1	na	carcinogen, initial date 1/1/88
• Formaldehyde	50-00-0	na	carcinogen, initial date 1/1/88 (gas)

U.S. - California - Proposition 65 - Developmental Toxicity

None Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

None Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

None Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• p-Dioxane	123-91-1	na
• Formaldehyde	50-00-0	na
• 1,2-Ethanediol	107-21-1	0.1% TO 1%

United States - Rhode Island

Labor

U.S. - Rhode Island - Hazardous Substance List

• p-Dioxane	123-91-1	na	Toxic (skin); Flammable (skin); Carcinogen (skin)
• Formaldehyde	50-00-0	na	Toxic; Flammable; Carcinogen
• 1,2-Ethanediol	107-21-1	0.1% TO 1%	Toxic; Flammable

Additional Regulatory Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16 - Other Information

Preparation Date

- 06/08/2010

Last Revision Date

- 10/19/2011

Disclaimer/Statement of Liability

- Reasonable care has been taken in the preparation of this information, but the supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Material Safety Data Sheet before handling product.

Key to abbreviations

NDA = No Data Available

End of MSDS Number CT 10154-1