

# Material Safety Data Sheet



New & Improved Pow-R-Wash™ NR

## 1. Product and company identification

<b>Product name</b>	: New & Improved Pow-R-Wash™ NR
<b>Supplier</b>	: Chemtronics 8125 Cobb Center Drive Kennesaw, GA 30152  Tel. 770-424-4888 or toll free 800-645-5244
<b>Trade name</b>	: Pow-R-Wash™ NR
<b>Manufacturer</b>	: Chemtronics 8125 Cobb Center Drive Kennesaw, GA 30152  Tel. 770-424-4888 or toll free 800-645-5244
<b>Code</b>	: ES1613
<b>MSDS #</b>	: 1613
<b>Validation date</b>	: 7/25/2013.
<b>Print date</b>	: 7/25/2013.
<b><u>In case of emergency</u></b>	: Chemtrec - 1-800-424-9300 or collect 703-527-3887 24/7
<b>Product type</b>	: Aerosol.

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Liquid. [Aerosol.]
<b>Color</b>	: Colorless.
<b>Odor</b>	: Characteristic.
<b>Signal word</b>	: CAUTION!
<b>Hazard statements</b>	: MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.
<b>Precautionary measures</b>	: Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not eat, drink or smoke when using this product. Avoid contact with eyes, skin and clothing. Use personal protective equipment as required. Wash thoroughly after handling.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Potential acute health effects

<b>Inhalation</b>	: Harmful by inhalation. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Skin</b>	: Slightly irritating to the skin.
<b>Eyes</b>	: Moderately irritating to eyes.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.

## 2. Hazards identification

- Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.  
**Target organs** : Contains material which may cause damage to the following organs: lungs, the nervous system, the reproductive system, liver, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

### Over-exposure signs/symptoms

- Inhalation** : Adverse symptoms may include the following:  
 respiratory tract irritation  
 coughing  
**Ingestion** : No specific data.  
**Skin** : Adverse symptoms may include the following:  
 irritation  
 redness  
**Eyes** : Adverse symptoms may include the following:  
 irritation  
 watering  
 redness

- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

### United States

Name	CAS number	%
1-bromopropane	106-94-5	65 - 75
norflurane	811-97-2	5 - 25
propan-1-ol	71-23-8	1 - 5
Carbon dioxide	124-38-9	1 - 5
1,2-epoxybutane	106-88-7	0.1 - 1

### Canada

Name	CAS number	%
1-bromopropane	106-94-5	65 - 75
norflurane	811-97-2	5 - 25
propan-1-ol	71-23-8	1 - 5
Carbon dioxide	124-38-9	1 - 5
1,2-epoxybutane	106-88-7	0.1 - 1

### Mexico

					Classification			
Name	CAS number	UN number	%	IDLH	H	F	R	Special
propan-1-ol	71-23-8	UN1993	1 - 5	800 ppm	2	3	0	-
1-bromopropane	106-94-5	Not available.	65 - 75	-	0	2	0	-
Carbon dioxide	124-38-9	Not available.	1 - 5	40000 ppm	0	0	0	-

### 3. Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

### 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### 5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst. Bursting aerosol containers may be propelled from a fire at high speed.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
halogenated compounds  
carbonyl halides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### 6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## 6. Accidental release measures

### Methods for cleaning up

#### Small spill

- : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

#### Large spill

- : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## 7. Handling and storage

### Handling

- : Put on appropriate personal protective equipment (see Section 8). 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. Remove contaminated clothing and protective equipment before entering eating areas. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous.

### Storage

- : Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

### United States

Ingredient	Exposure limits
1-bromopropane	<b>ACGIH TLV (United States, 3/2012).</b>
norflurane	TWA: 10 ppm 8 hours.
propan-1-ol	<b>AIHA WEEL (United States, 10/2011).</b>
	TWA: 1000 ppm 8 hours.
	<b>ACGIH TLV (United States, 3/2012).</b>
	TWA: 100 ppm 8 hours.
	<b>NIOSH REL (United States, 1/2013). Absorbed through skin.</b>
	STEL: 625 mg/m <sup>3</sup> 15 minutes.
	STEL: 250 ppm 15 minutes.
	TWA: 500 mg/m <sup>3</sup> 10 hours.
	TWA: 200 ppm 10 hours.
	<b>OSHA PEL (United States, 6/2010).</b>
	TWA: 500 mg/m <sup>3</sup> 8 hours.
	TWA: 200 ppm 8 hours.
	<b>OSHA PEL 1989 (United States, 3/1989).</b>
	STEL: 625 mg/m <sup>3</sup> 15 minutes.
	STEL: 250 ppm 15 minutes.
	TWA: 500 mg/m <sup>3</sup> 8 hours.
	TWA: 200 ppm 8 hours.
Carbon dioxide	<b>ACGIH TLV (United States, 3/2012). Oxygen Depletion</b>
	<b>[Asphyxiant].</b>
	STEL: 54000 mg/m <sup>3</sup> 15 minutes.
	STEL: 30000 ppm 15 minutes.
	TWA: 9000 mg/m <sup>3</sup> 8 hours.

## 8. Exposure controls/personal protection

1,2-epoxybutane	<p>TWA: 5000 ppm 8 hours.  <b>NIOSH REL (United States, 1/2013).</b>          STEL: 54000 mg/m<sup>3</sup> 15 minutes.          STEL: 30000 ppm 15 minutes.          TWA: 9000 mg/m<sup>3</sup> 10 hours.          TWA: 5000 ppm 10 hours.  <b>OSHA PEL (United States, 6/2010).</b>          TWA: 9000 mg/m<sup>3</sup> 8 hours.          TWA: 5000 ppm 8 hours.  <b>OSHA PEL 1989 (United States, 3/1989).</b>          STEL: 54000 mg/m<sup>3</sup> 15 minutes.          STEL: 30000 ppm 15 minutes.          TWA: 18000 mg/m<sup>3</sup> 8 hours.          TWA: 10000 ppm 8 hours.  <b>AIHA WEEL (United States, 10/2011).</b>          TWA: 2 ppm 8 hours.</p>
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### Canada

<u>Occupational exposure limits</u>		TWA (8 hours)			STEL (15 mins)			Ceiling			Notations
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	
1-bromopropane	US ACGIH 3/2012	10	-	-	-	-	-	-	-	-	[2]
	BC 4/2012	10	-	-	-	-	-	-	-	-	
	ON 1/2013	10	-	-	-	-	-	-	-	-	
Carbon dioxide	US ACGIH 3/2012	5000	9000	-	30000	54000	-	-	-	-	
	AB 4/2009	5000	9000	-	30000	54000	-	-	-	-	
	BC 4/2012	5000	-	-	15000	-	-	-	-	-	[3]
	ON 1/2013	5000	9000	-	30000	54000	-	-	-	-	
	QC 12/2012	5000	9000	-	30000	54000	-	-	-	-	
norflurane	US AIHA 10/2011	1000	-	-	-	-	-	-	-	-	
propan-1-ol	US ACGIH 3/2012	100	-	-	-	-	-	-	-	-	
	AB 4/2009	200	492	-	400	984	-	-	-	-	[1]
	BC 4/2012	100	-	-	-	-	-	-	-	-	
	ON 1/2013	100	-	-	-	-	-	-	-	-	
	QC 12/2012	200	492	-	250	614	-	-	-	-	
1,2-epoxybutane	US AIHA 10/2011	2	-	-	-	-	-	-	-	-	

[1]Absorbed through skin. [2]Oxygen Depletion [Asphyxiant] [3]Skin sensitization

### Mexico

#### Occupational exposure limits

Ingredient	Exposure limits
1-bromopropane	<p><b>ACGIH TLV (United States, 3/2012).</b>          TWA: 10 ppm 8 hours.</p>
propan-1-ol	<p><b>NOM-010-STPS (Mexico, 9/2000). Absorbed through skin.</b>          LMPE-CT: 625 mg/m<sup>3</sup> 15 minutes.          LMPE-CT: 250 ppm 15 minutes.          LMPE-PPT: 500 mg/m<sup>3</sup> 8 hours.          LMPE-PPT: 200 ppm 8 hours.</p>
Carbon dioxide	<p><b>NOM-010-STPS (Mexico, 9/2000).</b>          LMPE-CT: 27000 mg/m<sup>3</sup> 15 minutes.          LMPE-CT: 15000 ppm 15 minutes.          LMPE-PPT: 9000 mg/m<sup>3</sup> 8 hours.          LMPE-PPT: 5000 ppm 8 hours.</p>

Consult local authorities for acceptable exposure limits.

## 8. Exposure controls/personal protection

<b>Recommended monitoring procedures</b>	: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
<b>Engineering measures</b>	: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Hygiene measures</b>	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
<b><u>Personal protection</u></b>	
<b>Respiratory</b>	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<b>Hands</b>	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
<b>Eyes</b>	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
<b>Skin</b>	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
<b>Environmental exposure controls</b>	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

<b>Physical state</b>	: Liquid. [Aerosol.]
<b>Flash point</b>	: None.
<b>Auto-ignition temperature</b>	: 460°C (860°F)
<b>Flammable limits</b>	: Lower: 3.8% Upper: 9.5%
<b>Color</b>	: Colorless.
<b>Odor</b>	: Characteristic.
<b>Boiling/condensation point</b>	: 70°C (158°F)
<b>Relative density</b>	: 1.35
<b>Vapor pressure</b>	: 14.8 kPa (110.8 mm Hg) [room temperature]
<b>Evaporation rate</b>	: >1 (butyl acetate = 1)
<b><u>Aerosol product</u></b>	
<b>Type of aerosol</b>	: Spray
<b>Heat of combustion</b>	: 0.9162 kJ/g

## 10. Stability and reactivity

<b>Chemical stability</b>	: The product is stable.
<b>Conditions to avoid</b>	: No specific data.
<b>Incompatible materials</b>	: No specific data.
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### United States

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1-bromopropane	LD50 Oral	Rat	3600 mg/kg	-
norflurane	LC50 Inhalation Vapor	Rat	1500 g/m <sup>3</sup>	4 hours
propan-1-ol	LD50 Dermal	Rabbit	5040 mg/kg	-
	LD50 Oral	Rat	1870 mg/kg	-
1,2-epoxybutane	LC50 Inhalation Vapor	Rat	6300 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	500 mg/kg	-

**Conclusion/Summary** : Not available.

#### Chronic toxicity

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
propan-1-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Human	-	47 hours 100 Percent	-
	Skin - Mild irritant	Human	-	24 hours 100 Percent	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
1,2-epoxybutane	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

**Conclusion/Summary** : Not available.

#### Sensitizer

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
norflurane	-	-	-	-	-	None.
propan-1-ol	-	-	-	A4	-	None.
1,2-epoxybutane	-	2B	-	-	-	-

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

## 11. Toxicological information

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Canada

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1-bromopropane	LD50 Oral	Rat	3600 mg/kg	-
norflurane	LC50 Inhalation Vapor	Rat	1500 g/m <sup>3</sup>	4 hours
propan-1-ol	LD50 Dermal	Rabbit	5040 mg/kg	-
	LD50 Oral	Rat	1870 mg/kg	-
1,2-epoxybutane	LC50 Inhalation Vapor	Rat	6300 mg/m <sup>3</sup>	4 hours
	LD50 Oral	Rat	500 mg/kg	-

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
propan-1-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Human	-	47 hours 100 Percent	-
	Skin - Mild irritant	Human	-	24 hours 100 Percent	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
1,2-epoxybutane	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

**Conclusion/Summary** : Not available.

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
norflurane	-	-	-	None.	-	-
propan-1-ol	A4	-	-	None.	-	-
1,2-epoxybutane	-	2B	-	-	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Mexico

#### Acute toxicity

## 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
propan-1-ol	LD50 Dermal	Rabbit	5040 mg/kg	-
	LD50 Oral	Rat	1870 mg/kg	-
1-bromopropane	LD50 Oral	Rat	3600 mg/kg	-

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Score	Score	Exposure	Observation
propan-1-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Human	-	47 hours 100 Percent	-
	Skin - Mild irritant	Human	-	24 hours 100 Percent	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

**Conclusion/Summary** : Not available.

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
norflurane	-	-	-	None.	-	-
propan-1-ol	A4	-	-	None.	-	-
1,2-epoxybutane	-	2B	-	-	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

## 12. Ecological information

**Ecotoxicity** : No known significant effects or critical hazards.

### United States

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
1-bromopropane	Acute LC50 67300 µg/l Fresh water	Fish - Pimephales promelas	96 hours
propan-1-ol	Acute EC50 4480000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 1000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 2950000 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 3800000 µg/l Marine water	Fish - Alburnus alburnus	96 hours

**Conclusion/Summary** : Not available.

### Persistence/degradability

**Conclusion/Summary** : Not available.

## 12. Ecological information

### Canada

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
1-bromopropane	Acute LC50 67300 µg/l Fresh water	Fish - Pimephales promelas	96 hours
propan-1-ol	Acute EC50 4480000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 1000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 2950000 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 3800000 µg/l Marine water	Fish - Alburnus alburnus	96 hours

**Conclusion/Summary** : Not available.

#### Persistence/degradability

**Conclusion/Summary** : Not available.

### Mexico

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
propan-1-ol	Acute EC50 4480000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 1000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 2950000 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 3800000 µg/l Marine water	Fish - Alburnus alburnus	96 hours
1-bromopropane	Acute LC50 67300 µg/l Fresh water	Fish - Pimephales promelas	96 hours

**Conclusion/Summary** : Not available.

#### Persistence/degradability

**Conclusion/Summary** : Not available.

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.




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

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information

## 14. Transport information

<b>DOT Classification</b>	-	Consumer commodity ORM-D	ORM-D	-		<b>Reportable quantity</b> 18181.8 lbs / 8254.5 kg [1615.3 gal / 6114.5 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
<b>TDG Classification</b>	-	Consumer commodity ORM-D	ORM-D	-		-
<b>Mexico Classification</b>	-	Consumer commodity ORM-D	ORM-D	-		-
<b>ADR/RID Class</b>	1950	AEROSOLS, non-flammable	2	-		<b>Tunnel code</b> (E)
<b>IMDG Class</b>	1950	AEROSOLS (Non-flammable)	2.2	-		-
<b>IATA-DGR Class</b>	1950	AEROSOLS, non-flammable	2.2	-		-

PG\* : Packing group

## 15. Regulatory information

### United States

**HCS Classification** : Irritating material  
Carcinogen  
Target organ effects

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined  
**United States inventory (TSCA 8b)**: All components are listed or exempted.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

## 15. Regulatory information

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard  
Delayed (chronic) health hazard

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
1-bromopropane	65 - 75	Yes.	No.	No.	No.	Yes.
Carbon dioxide	1 - 5	No.	No.	No.	No.	Yes.
norflurane	5 - 25	No.	Yes.	No.	No.	Yes.
propan-1-ol	1 - 5	Yes.	No.	No.	Yes.	Yes.
1,2-epoxybutane	0.1 - 1	Yes.	No.	No.	Yes.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	1,2-epoxybutane	106-88-7	0.1 - 1
<b>Supplier notification</b>	1,2-epoxybutane	106-88-7	0.1 - 1

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

### State regulations

**Massachusetts** : The following components are listed: N-PROPYL BROMIDE; CARBON DIOXIDE; PROPYL ALCOHOL

**New York** : The following components are listed: 1,2-Epoxybutane

**New Jersey** : The following components are listed: 1-BROMOPROPANE; PROPANE, 1-BROMO-; CARBON DIOXIDE; CARBONIC ACID GAS; PROPYL ALCOHOL; 1-PROPANOL; 1, 2-BUTYLENE OXIDE; 1,2-EPOXYBUTANE

**Pennsylvania** : The following components are listed: PROPANE, 1-BROMO-; CARBON DIOXIDE; 1-PROPANOL; OXIRANE, ETHYL-

### California Prop. 65

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
1-bromopropane	No.	Yes.	No.	No.

**United States inventory (TSCA 8b)** : All components are listed or exempted.

### Canada

**WHMIS (Canada)** : Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

### Canadian lists

**Canadian NPRI** : The following components are listed: Volatile organic compounds

**CEPA Toxic substances** : The following components are listed: Carbon dioxide; Volatile organic compounds; Ethyloxirane

## 15. Regulatory information

**Canada inventory** : Not determined.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### Mexico

**Classification** :



### International regulations

**International lists** :

- Australia inventory (AICS)**: All components are listed or exempted.
- China inventory (IECSC)**: All components are listed or exempted.
- Japan inventory**: All components are listed or exempted.
- Korea inventory**: All components are listed or exempted.
- Malaysia Inventory (EHS Register)**: Not determined.
- New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.
- Philippines inventory (PICCS)**: All components are listed or exempted.
- Taiwan inventory (CSNN)**: Not determined.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## 16. Other information

**Label requirements** : MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

**Hazardous Material Information System (U.S.A.)** :

Health	2
Flammability	1
Physical hazards	1

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** :

## 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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▣ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.