

# Material Safety Data Sheet

Battery 81 Solvent



## 1. Product and company identification

<b>Product name</b>	: Battery 81 Solvent
<b>Material uses</b>	: Industrial applications: Flux.
<b>Manufacturer</b>	: AIM 9100 Henri Bourassa East Montreal, QC H1E 2S4 (514) 494-2000  In the United States: AIM 25 Kenney Drive Cranston, RI 02920 (800) CALL-AIM
<b>Validation date</b>	: 5/3/2016
<b>Print date</b>	: 5/3/2016
<b>In case of emergency</b>	: INFOTRAC North America: (800) 535-5053 International: (352) 323-3500
<b>Product type</b>	: Liquid.

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Liquid.
<b>Signal word</b>	: DANGER!
<b>Hazard statements</b>	: FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.
<b>Precautionary measures</b>	: Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Do not get in eyes. Do not get on skin. Do not eat, drink or smoke when using this product. Keep away from heat, sparks and flame. Keep container tightly closed. 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>	: Corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
<b>Ingestion</b>	: Harmful if swallowed. May cause burns to mouth, throat and stomach.
<b>Skin</b>	: Corrosive to the skin. Causes burns.
<b>Eyes</b>	: Corrosive to eyes. Causes burns.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that can cause target organ damage.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

## 2. Hazards identification

**Target organs** : Contains material which causes damage to the following organs: lungs, the reproductive system, mucous membranes, digestive system, eye, lens or cornea.  
 Contains material which may cause damage to the following organs: kidneys, the nervous system, liver, spleen, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), teeth, testes.

### Over-exposure signs/symptoms

**Inhalation** : Adverse symptoms may include the following:  
 respiratory tract irritation  
 coughing

**Ingestion** : Adverse symptoms may include the following:  
 stomach pains

**Skin** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 blistering may occur

**Eyes** : Adverse symptoms may include the following:  
 pain  
 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	%
2-methylpropan-1-ol	78-83-1	30 - 40
tetrahydro-2-furylmethanol	97-99-4	10 - 20
Hydrobromic acid	10035-10-6	10 - 20
2-aminoethanol	141-43-5	0.1 - 10
Phosphoric acid	7664-38-2	0.1 - 10

### Canada

Name	CAS number	%
2-methylpropan-1-ol	78-83-1	30 - 40
tetrahydro-2-furylmethanol	97-99-4	10 - 20
Hydrobromic acid	10035-10-6	10 - 20
2-aminoethanol	141-43-5	0.1 - 10
Phosphoric acid	7664-38-2	0.1 - 10

### Mexico

Name	CAS number	UN number	%	IDLH	Classification			
					H	F	R	Special
tetrahydro-2-furylmethanol	97-99-4	Not regulated.	10 - 20	-	2	2	0	-
Hydrobromic acid	10035-10-6	UN3287	10 - 20	30 ppm	3	0	0	-
2-aminoethanol	141-43-5	UN3082	0.1 - 10	30 ppm	3	2	0	-
Phosphoric acid	7664-38-2	Not available.	0.1 - 10	-	3	0	0	-
2-methylpropan-1-ol	78-83-1	UN1993	30 - 40	1600 ppm	0	3	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. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

### 5. Fire-fighting measures

- Flammability of the product** : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- 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  
nitrogen oxides  
phosphorus oxides  
halogenated compounds
- 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. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe 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).

### Methods for cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Use spark-proof tools and explosion-proof equipment. 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). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. 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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage** : Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from alkalis. Separate from oxidizing materials. 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.

## 8. Exposure controls/personal protection

### United States

Ingredient	Exposure limits
2-methylpropan-1-ol	<p><b>ACGIH TLV (United States, 3/2015).</b>            TWA: 50 ppm 8 hours.            TWA: 152 mg/m<sup>3</sup> 8 hours.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            TWA: 50 ppm 8 hours.            TWA: 150 mg/m<sup>3</sup> 8 hours.</p> <p><b>NIOSH REL (United States, 10/2013).</b>            TWA: 50 ppm 10 hours.            TWA: 150 mg/m<sup>3</sup> 10 hours.</p> <p><b>OSHA PEL (United States, 2/2013).</b>            TWA: 100 ppm 8 hours.            TWA: 300 mg/m<sup>3</sup> 8 hours.</p>
tetrahydro-2-furylmethanol	<p><b>AIHA WEEL (United States, 10/2011).</b>            TWA: 0.5 ppm 8 hours.</p>
Hydrobromic acid	<p><b>ACGIH TLV (United States, 3/2015).</b>            C: 2 ppm</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            CEIL: 3 ppm            CEIL: 10 mg/m<sup>3</sup></p> <p><b>NIOSH REL (United States, 10/2013).</b>            CEIL: 3 ppm            CEIL: 10 mg/m<sup>3</sup></p> <p><b>OSHA PEL (United States, 2/2013).</b>            TWA: 3 ppm 8 hours.            TWA: 10 mg/m<sup>3</sup> 8 hours.</p>
2-aminoethanol	<p><b>ACGIH (United States, 0/1994).</b>            TWA: 3 ppm            STEL: 6 ppm            TWA: 7.5 mg/m<sup>3</sup>            STEL: 15 mg/m<sup>3</sup>            CEIL: 6 mg/m<sup>3</sup></p> <p><b>NIOSH (United States, 0/1994).</b>            TWA: 3 ppm            STEL: 6 ppm            CEIL: 15 ppm            TWA: 8 mg/m<sup>3</sup>            STEL: 15 mg/m<sup>3</sup></p> <p><b>OSHA (United States, 0/1989).</b>            TWA: 3 ppm            STEL: 6 ppm            CEIL: 5.1 ppm            TWA: 8 mg/m<sup>3</sup>            STEL: 15 mg/m<sup>3</sup></p> <p><b>ACGIH TLV (United States, 3/2015).</b>            TWA: 3 ppm 8 hours.            TWA: 7.5 mg/m<sup>3</sup> 8 hours.            STEL: 6 ppm 15 minutes.            STEL: 15 mg/m<sup>3</sup> 15 minutes.</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b>            TWA: 3 ppm 8 hours.            TWA: 8 mg/m<sup>3</sup> 8 hours.            STEL: 6 ppm 15 minutes.            STEL: 15 mg/m<sup>3</sup> 15 minutes.</p> <p><b>NIOSH REL (United States, 10/2013).</b></p>

## 8. Exposure controls/personal protection

	<p>TWA: 3 ppm 10 hours.                  TWA: 8 mg/m<sup>3</sup> 10 hours.                  STEL: 6 ppm 15 minutes.                  STEL: 15 mg/m<sup>3</sup> 15 minutes.  <b>OSHA PEL (United States, 2/2013).</b>                  TWA: 3 ppm 8 hours.                  TWA: 6 mg/m<sup>3</sup> 8 hours.</p>
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### Canada

<u>Occupational exposure limits</u>		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	Notations
2-methylpropan-1-ol	US ACGIH 3/2015	50	152	-	-	-	-	-	-	-	[3]
	AB 4/2009	50	152	-	-	-	-	-	-	-	
	BC 5/2015	50	-	-	-	-	-	-	-	-	
	ON 7/2015	50	152	-	-	-	-	-	-	-	
	QC 1/2014	50	152	-	-	-	-	-	-	-	
	SK	-	-	50 PPM	-	-	60 PPM	-	-	-	
tetrahydro-2-furylmethanol Hydrobromic acid	US AIHA 10/2011	0.5	-	-	-	-	-	-	-	-	
	US ACGIH 3/2015	-	-	-	-	-	-	2	-	-	
	AB 4/2009	-	-	-	-	-	-	2	6.6	-	
	BC 5/2015	-	-	-	-	-	-	2	-	-	
	ON 7/2015	-	-	-	-	-	-	2	-	-	
	QC 1/2014	-	-	-	3	9.9	-	-	-	-	
2-aminoethanol	SK	-	-	-	-	-	-	-	-	2 PPM	[3]
	US ACGIH 3/2015	3	7.5	-	6	15	-	-	-	-	
	AB 4/2009	3	7.5	-	6	15	-	-	-	-	
	BC 5/2015	3	-	-	6	-	-	-	-	-	
	ON 7/2015	3	7.5	-	6	15	-	-	-	-	
	QC 1/2014	3	7.5	-	6	15	-	-	-	-	
SK	-	-	3 PPM	-	-	6 PPM	-	-	-		

[3]Skin sensitization

### Mexico

#### Occupational exposure limits

Ingredient	Exposure limits
2-methylpropan-1-ol	<p><b>NOM-010-STPS (Mexico, 9/2000).</b>                      LMPE-PPT: 50 ppm 8 hours.                      LMPE-PPT: 150 mg/m<sup>3</sup> 8 hours.                      LMPE-CT: 225 mg/m<sup>3</sup> 15 minutes.                      LMPE-CT: 75 ppm 15 minutes.</p>
Hydrobromic acid	<p><b>NOM-010-STPS (Mexico, 9/2000).</b>                      LMPE-Pico: 10 mg/m<sup>3</sup>                      LMPE-Pico: 3 ppm</p>
2-aminoethanol	<p><b>NOM-010-STPS (Mexico, 9/2000).</b>                      LMPE-PPT: 3 ppm 8 hours.                      LMPE-PPT: 8 mg/m<sup>3</sup> 8 hours.                      LMPE-CT: 15 mg/m<sup>3</sup> 15 minutes.                      LMPE-CT: 6 ppm 15 minutes.</p>

Consult local authorities for acceptable exposure limits.

**Recommended monitoring procedures** : 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.

## 8. Exposure controls/personal protection

- Engineering measures** : 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. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : 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.
- Personal protection**
- Respiratory** : 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.
- Hands** : 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.
- Eyes** : 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin** : 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.  
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Environmental exposure controls** : 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

- Physical state** : Liquid.
- Flash point** : Closed cup: 22°C (71.6°F)
- pH** : 0.52 [Conc. (% w/w): 10%]

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.  
Reactive or incompatible with the following materials:  
alkalis  
oxidizing materials

## 10. Stability and reactivity

**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Possibility of hazardous reactions** : 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
2-methylpropan-1-ol	LC50 Inhalation Vapor	Rat	19200 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-
Hydrobromic acid	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
2-aminoethanol	LD50 Oral	Guinea pig	620 mg/kg	-
	LD50 Oral	Mouse	700 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
Phosphoric acid	LD50 Dermal	Rabbit	2740 mg/kg	-
	LD50 Oral	Rat	1530 mg/kg	-

**Conclusion/Summary** : Not available.

#### Chronic toxicity

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 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
tetrahydro-2-furylmethanol	-	-	-	-	-	None.
2-aminoethanol	-	-	-	-	-	None.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Canada



## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-methylpropan-1-ol	LC50 Inhalation Vapor	Rat	19200 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-
Hydrobromic acid	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
2-aminoethanol	LD50 Oral	Guinea pig	620 mg/kg	-
	LD50 Oral	Mouse	700 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
Phosphoric acid	LD50 Dermal	Rabbit	2740 mg/kg	-
	LD50 Oral	Rat	1530 mg/kg	-

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 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
tetrahydro-2-furylmethanol	-	-	-	None.	-	-
2-aminoethanol	-	-	-	None.	-	-

### 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
2-methylpropan-1-ol	LC50 Inhalation Vapor	Rat	19200 mg/m <sup>3</sup>	4 hours
	LD50 Dermal	Rabbit	3400 mg/kg	-
	LD50 Oral	Rat	2460 mg/kg	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-
	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
Hydrobromic acid	LD50 Oral	Guinea pig	620 mg/kg	-
2-aminoethanol	LD50 Oral	Mouse	700 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
Phosphoric acid	LD50 Dermal	Rabbit	2740 mg/kg	-
	LD50 Oral	Rat	1530 mg/kg	-

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Score	Score	Exposure	Observation
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 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
tetrahydro-2-furylmethanol	-	-	-	None.	-	-
2-aminoethanol	-	-	-	None.	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Other information

: 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.

## 12. Ecological information

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

### United States

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-methylpropan-1-ol	Acute LC50 600000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 1030000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
2-aminoethanol	Acute LC50 1330000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 4000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 8.42 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute LC50 >100000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 170000 µg/l Fresh water	Fish - Carassius auratus	96 hours

**Conclusion/Summary** : Not available.

#### Persistence/degradability

**Conclusion/Summary** : Not available.

### Canada

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-methylpropan-1-ol	Acute LC50 600000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 1030000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
2-aminoethanol	Acute LC50 1330000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 4000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 8.42 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute LC50 >100000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 170000 µg/l Fresh water	Fish - Carassius auratus	96 hours

**Conclusion/Summary** : Not available.

#### Persistence/degradability

**Conclusion/Summary** : Not available.

### Mexico

#### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
2-methylpropan-1-ol	Acute LC50 600000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 1030000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
2-aminoethanol	Acute LC50 1330000 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 4000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 8.42 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute LC50 >100000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 170000 µg/l Fresh water	Fish - Carassius auratus	96 hours

**Conclusion/Summary** : Not available.

## 12. Ecological information

### Persistence/degradability

**Conclusion/Summary** : Not available.

**Other adverse effects** : No known significant effects or critical hazards.

## 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.





### United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Isobutyl alcohol (I,T); 1-Propanol, 2-methyl- (I,T)	78-83-1	Listed	U140

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
<b>DOT Classification</b>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II	 	<b>Reportable quantity</b> 12500 lbs / 5675 kg 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>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II	 	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.40-2.42 (Class 8).

## 14. Transport information

<b>Mexico Classification</b>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II		-
<b>ADR/RID Class</b>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II		<b>Tunnel code</b> (D/E)
<b>IMDG Class</b>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II		-
<b>IATA-DGR Class</b>	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Hydrobromic acid, Isobutyl alcohol)	3 (8)	II		-

PG\* : Packing group

## 15. Regulatory information

### United States

**HCS Classification** : Corrosive material

**U.S. Federal regulations** : **TSCA 8(a) PAIR**: TERGITOL NP-33 (NONIONIC)

**TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

**TSCA 8(d) H and S data reporting**: TERGITOL NP-33 (NONIONIC): 1997

All components are listed or exempted.

**Clean Air Act Section 112** : Not listed

**(b) Hazardous Air Pollutants (HAPs)**

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

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

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

**Clean Air Act Section 602 Class II Substances**

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

**DEA List I Chemicals (Precursor Chemicals)**

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

**DEA List II Chemicals (Essential Chemicals)**

**SARA 302/304**

## 15. Regulatory information

### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
 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
2-methylpropan-1-ol	30 - 40	Yes.	No.	No.	Yes.	Yes.
tetrahydro-2-furylmethanol	10 - 20	Yes.	No.	No.	Yes.	No.
Hydrobromic acid	10 - 20	No.	No.	No.	No.	Yes.
2-aminoethanol	0.1 - 10	Yes.	No.	No.	Yes.	Yes.
Phosphoric acid	0.1 - 10	No.	No.	No.	Yes.	No.

### State regulations

**Massachusetts** : The following components are listed: ISOBUTYL ALCOHOL; Hydrobromic acid; TETRAHYDROFURFURYL ALCOHOL; 2-aminoethanol

**New York** : The following components are listed: Isobutanol; 1-Propanol, 2-methyl-

**New Jersey** : The following components are listed: ISOBUTYL ALCOHOL; 1-PROPANOL, 2-METHYL-; Hydrobromic acid; 2-aminoethanol

**Pennsylvania** : The following components are listed: 1-PROPANOL, 2-METHYL-; Hydrobromic acid; 2-FURANMETHANOL, TETRAHYDRO-; 2-aminoethanol

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

### Canada

**WHMIS (Canada)** : Class B-2: Flammable liquid  
 Class D-1A: Material causing immediate and serious toxic effects (Very toxic).  
 Class D-2B: Material causing other toxic effects (Toxic).  
 Class E: Corrosive material

### Canadian lists

**Canadian NPRI** : The following components are listed: i-Butyl alcohol

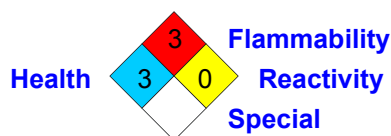
**CEPA Toxic substances** : None of the components are listed.

**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

## 15. Regulatory information

- International lists** : Australia inventory (AICS): Not determined.  
 China inventory (IECSC): Not determined.  
 Japan inventory (ENCS): Not determined.  
 Japan inventory (ISHL): Not determined.  
 Korea inventory: Not determined.  
 Malaysia Inventory (EHS Register): Not determined.  
 New Zealand Inventory of Chemicals (NZIoC): Not determined.  
 Philippines inventory (PICCS): Not determined.  
 Taiwan Chemical Substances Inventory (TCSI): Not determined.  
 Turkey inventory: 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** : FLAMMABLE LIQUID AND VAPOR. CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

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

Health	3
Flammability	3
Physical hazards	0

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.)** :



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## 16. Other information

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**Date of printing** : 5/3/2016  
**Date of issue** : 5/3/2016  
**Date of previous issue** : 10/19/2015  
**Version** : 0.03  
**Prepared by** : Not available.

✔ Indicates information that has changed from previously issued version.

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