

Material Safety Data Sheet

NF 105



1. Product and company identification

Product name : NF 105
Synonym : NF105-3, NF105-5
Manufacturer : In Canada:
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

Validation date : 6/26/2015
Print date : 6/30/2015
In case of emergency : INFOTRAC
North America: (800) 535-5053
International: (352) 323-3500

Product type : Liquid.

2. Hazards identification

Emergency overview

Physical state : Liquid.
Signal word : DANGER!
Hazard statements : CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.
Precautionary measures : 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. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Potential acute health effects

Inhalation : Toxic by inhalation. Corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion : Toxic if swallowed. May cause burns to mouth, throat and stomach.
Skin : Corrosive to the skin. Causes burns. Toxic in contact with skin.
Eyes : Corrosive to eyes. Causes burns.

Potential chronic health effects

Chronic effects : Contains material that can cause target organ damage.
Carcinogenicity : No known significant effects or critical hazards.
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.

2. Hazards identification

- Fertility effects** : No known significant effects or critical hazards.
- 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	%
Hydrochloric acid	7647-01-0	0.1 - 10
Hydrobromic acid	10035-10-6	0.1 - 10
HYDROXYACETIC ACID	79-14-1	0.1 - 10
2-aminoethanol	141-43-5	0.1 - 10
tetrahydro-2-furylmethanol	97-99-4	0.1 - 10

Canada

Name	CAS number	%
Hydrochloric acid	7647-01-0	0.1 - 10
Hydrobromic acid	10035-10-6	0.1 - 10
HYDROXYACETIC ACID	79-14-1	0.1 - 10
2-aminoethanol	141-43-5	0.1 - 10
tetrahydro-2-furylmethanol	97-99-4	0.1 - 10

Mexico

Name	CAS number	UN number	%	IDLH	Classification			
					H	F	R	Special

3. Composition/information on ingredients

Hydrobromic acid	10035-10-6	UN1760	0.1 - 10	30 ppm	3	0	0	-
Hydrochloric acid	7647-01-0	Not available.	0.1 - 10	50 ppm	3	0	0	-
HYDROXYACETIC ACID	79-14-1	Not available.	0.1 - 10	-	3	0	0	-
2-aminoethanol	141-43-5	UN3082	0.1 - 10	30 ppm	3	2	0	-
tetrahydro-2-furylmethanol	97-99-4	Not regulated.	0.1 - 10	-	2	2	0	-

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** : In a fire or if heated, a pressure increase will occur and the container may burst.
- 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.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen 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. 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. 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. 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. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. 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. 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
Hydrochloric acid	<p>ACGIH (United States, 0/1994). CEIL: 5 ppm TWA: 5 mg/m³ CEIL: 7.5 mg/m³</p> <p>NIOSH (United States, 0/1994). TWA: 7 ppm STEL: 10 ppm CEIL: 5 ppm TWA: 2 mg/m³ STEL: 8 mg/m³ CEIL: 7 mg/m³</p> <p>OSHA (United States, 0/1989).</p>

8. Exposure controls/personal protection

Hydrobromic acid

TWA: 8 ppm
 CEIL: 5 ppm
 TWA: 7 mg/m³
 CEIL: 7 mg/m³
ACGIH TLV (United States, 3/2015).
 C: 2 ppm
OSHA PEL 1989 (United States, 3/1989).
 CEIL: 5 ppm
 CEIL: 7 mg/m³
NIOSH REL (United States, 10/2013).
 CEIL: 5 ppm
 CEIL: 7 mg/m³
OSHA PEL (United States, 2/2013).
 CEIL: 5 ppm
 CEIL: 7 mg/m³
ACGIH TLV (United States, 3/2015).
 C: 2 ppm
OSHA PEL 1989 (United States, 3/1989).
 CEIL: 3 ppm
 CEIL: 10 mg/m³
NIOSH REL (United States, 10/2013).
 CEIL: 3 ppm
 CEIL: 10 mg/m³
OSHA PEL (United States, 2/2013).
 TWA: 3 ppm 8 hours.
 TWA: 10 mg/m³ 8 hours.

2-aminoethanol

ACGIH (United States, 0/1994).
 TWA: 3 ppm
 STEL: 6 ppm
 TWA: 7.5 mg/m³
 STEL: 15 mg/m³
 CEIL: 6 mg/m³
NIOSH (United States, 0/1994).
 TWA: 3 ppm
 STEL: 6 ppm
 CEIL: 15 ppm
 TWA: 8 mg/m³
 STEL: 15 mg/m³
OSHA (United States, 0/1989).
 TWA: 3 ppm
 STEL: 6 ppm
 CEIL: 5.1 ppm
 TWA: 8 mg/m³
 STEL: 15 mg/m³
ACGIH TLV (United States, 3/2015).
 TWA: 3 ppm 8 hours.
 TWA: 7.5 mg/m³ 8 hours.
 STEL: 6 ppm 15 minutes.
 STEL: 15 mg/m³ 15 minutes.
OSHA PEL 1989 (United States, 3/1989).
 TWA: 3 ppm 8 hours.
 TWA: 8 mg/m³ 8 hours.
 STEL: 6 ppm 15 minutes.
 STEL: 15 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
 TWA: 3 ppm 10 hours.
 TWA: 8 mg/m³ 10 hours.
 STEL: 6 ppm 15 minutes.

8. Exposure controls/personal protection

tetrahydro-2-furylmethanol	STEL: 15 mg/m ³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 3 ppm 8 hours. TWA: 6 mg/m ³ 8 hours. AIHA WEEL (United States, 10/2011). TWA: 0.5 ppm 8 hours.
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Canada

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

[3]Skin sensitization

Mexico

Occupational exposure limits

Ingredient	Exposure limits
Hydrochloric acid	NOM-010-STPS (Mexico, 9/2000). LMPE-Pico: 7 mg/m ³ LMPE-Pico: 5 ppm
Hydrobromic acid	NOM-010-STPS (Mexico, 9/2000). LMPE-Pico: 10 mg/m ³ LMPE-Pico: 3 ppm
2-aminoethanol	NOM-010-STPS (Mexico, 9/2000). LMPE-PPT: 3 ppm 8 hours. LMPE-PPT: 8 mg/m ³ 8 hours. LMPE-CT: 15 mg/m ³ 15 minutes. LMPE-CT: 6 ppm 15 minutes.

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.

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.

8. Exposure controls/personal protection

- 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.
- 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.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- 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

11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Hydrobromic acid	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
Hydrochloric acid	LD50 Oral	Mouse	151 mg/kg	-
	LD50 Oral	Mouse	2950 mg/kg	-
	LD50 Oral	Rat	915 mg/kg	-
	LDLo Oral	Mouse	150 mg/kg	-
	LDLo Oral	Mouse	110 mg/kg	-
HYDROXYACETIC ACID	LD50 Oral	Guinea pig	1920 mg/kg	-
	LD50 Oral	Rat	1950 mg/kg	-
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	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Hydrochloric acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 milligrams	-
	Skin - Mild irritant	Human	-	24 hours 4 Percent	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 milligrams	-
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 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
Hydrochloric acid	-	3	-	A4	-	None.
HYDROXYACETIC ACID	-	-	-	-	-	None.
2-aminoethanol	-	-	-	-	-	None.
tetrahydro-2-furylmethanol	-	-	-	-	-	None.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Canada

Acute toxicity

11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Hydrobromic acid	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
Hydrochloric acid	LD50 Oral	Mouse	151 mg/kg	-
	LD50 Oral	Mouse	2950 mg/kg	-
	LD50 Oral	Rat	915 mg/kg	-
	LDLo Oral	Mouse	150 mg/kg	-
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	LD50 Oral	Rat	1720 mg/kg	-
	LD50 Oral	Rat	1720 mg/kg	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Hydrochloric acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 milligrams	-
	Skin - Mild irritant	Human	-	24 hours 4 Percent	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 milligrams	-
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 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
Hydrochloric acid	A4	3	-	None.	-	-
HYDROXYACETIC ACID	-	-	-	None.	-	-
2-aminoethanol	-	-	-	None.	-	-
tetrahydro-2-furylmethanol	-	-	-	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
Hydrobromic acid	LC50 Inhalation Gas.	Rat	2858 ppm	1 hours
Hydrochloric acid	LD50 Oral	Mouse	151 mg/kg	-
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	LD50 Oral	Rat	915 mg/kg	-
	LDLo Oral	Mouse	150 mg/kg	-
	LDLo Oral	Mouse	110 mg/kg	-
HYDROXYACETIC ACID	LD50 Oral	Guinea pig	1920 mg/kg	-
	LD50 Oral	Rat	1950 mg/kg	-
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	-
tetrahydro-2-furylmethanol	LD50 Oral	Rat	1600 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Score	Score	Exposure	Observation
Hydrochloric acid	Eyes - Mild irritant	Rabbit	-	0.5 minutes 5 milligrams	-
	Skin - Mild irritant	Human	-	24 hours 4 Percent	-
2-aminoethanol	Eyes - Severe irritant	Rabbit	-	250 Micrograms	-
	Skin - Moderate irritant	Rabbit	-	505 milligrams	-
tetrahydro-2-furylmethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 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
Hydrochloric acid	A4	3	-	None.	-	-
HYDROXYACETIC ACID	-	-	-	None.	-	-
2-aminoethanol	-	-	-	None.	-	-
tetrahydro-2-furylmethanol	-	-	-	None.	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

11. Toxicological information

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
Hydrochloric acid	Acute LC50 240000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours
2-aminoethanol	Acute LC50 282 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	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
Hydrochloric acid	Acute LC50 240000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours
2-aminoethanol	Acute LC50 282 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	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
Hydrochloric acid	Acute LC50 240000 µg/l Marine water	Crustaceans - Carcinus maenas - Adult	48 hours
2-aminoethanol	Acute LC50 282 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.


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
DOT Classification	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		Reportable quantity 50000 lbs / 22700 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
TDG Classification	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8).
Mexico Classification	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		-
ADR/RID Class	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		Tunnel code (E)
IMDG Class	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		-

14. Transport information

IATA-DGR Class	1760	CORROSIVE LIQUID, N.O.S. (hydrobromic acid)	8	III		-
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PG* : Packing group

15. Regulatory information

United States

HCS Classification : Toxic material
Corrosive material
Target organ effects

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

Clean Water Act (CWA) 311: Hydrochloric acid

Clean Air Act (CAA) 112 regulated flammable substances: Hydrochloric acid

Clean Air Act (CAA) 112 regulated toxic substances: Hydrochloric acid

Clean Air Act Section 112 : 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

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Hydrochloric acid	0.1 - 10	Yes.	500	-	5000	-

SARA 304 RQ : 50000 lbs / 22700 kg

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
Hydrobromic acid	0.1 - 10	No.	Yes.	No.	Yes.	No.
Hydrochloric acid	0.1 - 10	No.	Yes.	No.	Yes.	Yes.
HYDROXYACETIC ACID	0.1 - 10	No.	No.	No.	Yes.	No.
2-aminoethanol	0.1 - 10	Yes.	No.	No.	Yes.	Yes.
tetrahydro-2-furylmethanol	0.1 - 10	Yes.	No.	No.	Yes.	No.

SARA 313

15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	Hydrochloric acid	7647-01-0	0.1 - 10
Supplier notification	Hydrochloric acid	7647-01-0	0.1 - 10

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: Hydrobromic acid; Hydrochloric acid; 2-aminoethanol; TETRAHYDROFURFURYL ALCOHOL

New York : The following components are listed: Hydrochloric acid

New Jersey : The following components are listed: Hydrobromic acid; Hydrochloric acid; 2-aminoethanol

Pennsylvania : The following components are listed: Hydrobromic acid; Hydrochloric acid; 2-aminoethanol; 2-FURANMETHANOL, TETRAHYDRO-

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

Canada

WHMIS (Canada) : 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: Hydrochloric acid

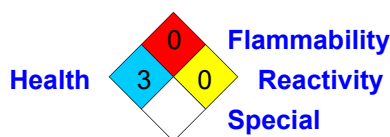
CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

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)**: Not determined.
- Japan inventory**: Not determined.
- Korea inventory**: All components are listed or exempted.
- Malaysia Inventory (EHS Register)**: Not determined.
- New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
- 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

15. Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

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

Health	3
Flammability	0
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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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.