

AZOGEN™

1. Identification

Product identifier:	AZOGEN™
Other means of identification:	Nitrogen based solution
Recommended use and restrictions on use:	Liquid nitrogen fertiliser for agriculture.
Initial supplier identifier:	Développement Solugen Inc. 270 chemin de l'Énergie-Verte St-Patrice de Beaurivage, Qc, G0S 1B0 Canada 1 (418) 262-6448 www.solugenglobal.com
Emergency telephone number (hours of operation):	1 (418) 668-1893 (Monday to Friday 7:00 to 17:00) Contact person: Richard Bergeron, Eng., Logistics Manager

2. Hazard Identification

GHS Classification:	SKIN CORROSION/IRRITATION – Category 1B EYE DAMAGE/IRRITATION – Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) – Category 3 AQUATIC HAZARD (ACUTE) – Category 2
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GHS information elements

Hazard pictogram(s):



Signal word:	Danger
Hazard statements:	H314 – Causes severe skin burns and eye damage H335 – May cause respiratory irritation H401 – Toxic to aquatic life
Precautionary statements	
Prevention:	P261 – Avoid breathing vapor. P264 – Wash skin thoroughly after handling. P271 – Use only outdoors or in a well-ventilated area. P273 – Avoid release to the environment. P280 – Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water (or shower). P363 – Wash contaminated clothing before reuse. P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310 – Immediately call a POISON CENTER/doctor. P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage:	P403 + P223 – Store in a well-ventilated place. Keep container tightly closed.

P405 – Store locked up.

Disposal: P501 – Dispose of contents and container in accordance with local, regional, national and international regulations.

Other known hazards: None known.

3. Composition/Information on ingredients

Substance or mixture: Mixture

Ingredient	CAS number	Concentration
Ammonium hydroxide	1336-21-6	5.0 – 10.0 %

Concentration declared in a range as the actual concentration is withheld as a trade secret.

Within the current knowledge of the supplier and in the applicable concentration, no additional ingredient present is classified as hazardous to health or the environment and therefore do not identification in this section.

4. First-aid measures

Description of necessary first-aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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. Immediately seek medical advice.

Ingestion: Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband Call a physician or a Poison Control Center immediately.

Skin contact: Flush contaminated skin with plenty of water. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Immediately seek medical advice.

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. Immediately seek medical advice.

Most important symptoms and effects, whether acute or delayed

Inhalation: Irritate the respiratory tract. May cause coughing and nausea.

Ingestion: May cause gastrointestinal irritation and cause stomach pain.

Skin contact: Causes severe skin burns. May cause pain, redness and, eventually, blistering.

Eye contact: Causes serious damage to the eyes. May cause pain, redness and watering.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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.
Specific treatments:	No specific treatment.

5. Fire-fighting measures

Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the hazardous product:	In the event of thermal decomposition or fire, vapours potentially dangerous to health may be released.
Hazardous combustion products:	Nitrogen oxides.
Special protective equipment and precautions 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, protective equipment and emergency procedures

For non-emergency personnel:	Restrict access to area until completion of cleanup. Avoid breathing vapor or mist. Provide adequate ventilation. Keep away from heat and sources of ignition. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material.
For emergency responders:	Wear adequate personal protective equipment.
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods and materials for containment and cleaning up

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.
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7. Handling and storage

Precautions for safe handling:	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. 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.
Advice on general hygiene:	Eating, drinking and smoking in working areas should be prohibited. Wash hands with soap and water before meals and at the end of the work shift. Remove contaminated clothing and protective equipment before entering eating areas.
Conditions for safe storage, including any incompatibilities:	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. Store locked up. 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

Control parameters:

Ingredient	CAS Number	Value	Control Parameters	Basis
Ammonium Hydroxide	1336-21-6	TWAEV	17 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		STEV	24 mg/m ³	

Appropriate engineering controls:

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Individual protection measures:

Hand protection:

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.

Eye protection:

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, gases 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.

Respiratory protection:

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Skin and body protection:

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. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

9. Physical and chemical properties

Appearance

Physical state:	Liquid.
Colour:	Colorless to lightly yellow.
Odour:	Ammonia
Odour threshold:	Not available
pH:	9.5 to 11
Melting point:	Not available
Freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash point:	Not applicable
Evaporation rate:	Not available
Lower flammability limits:	Not applicable
Upper flammability limits:	Not applicable

Vapour pressure:	Not available
Vapour density:	Not available
Relative density:	1.03
Solubility:	Not available
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	Not applicable
Decomposition temperature:	Not available
Viscosity:	Not available

10. Stability and reactivity

Reactivity:	No specific test data related to reactivity available for this product.
Chemical stability:	The product is stable.
Possibility of hazardous reactions:	Under normal conditions of use and storage, hazardous reactions will not occur.
Conditions to avoid:	None known.
Incompatible materials:	Oxidizing agents.
Hazardous decomposition products:	In case of thermal decomposition: Nitrogen oxides.

11. Toxicological information

Acute toxicity:

Ammonium hydroxide

LD₅₀ Oral (rat) = 350 mg/kg

Information on the likely routes of exposure: Dermal contact. Eye contact. Inhalation. Ingestion.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	Irritate the respiratory tract. May cause coughing and nausea.
Ingestion:	May cause gastrointestinal irritation and cause stomach pain.
Skin contact:	Causes severe skin burns. May cause pain, redness and, eventually, blistering.
Eye contact:	Causes serious damage to the eyes. May cause pain, redness and watering.

Delayed and immediate effects, and chronic effects from short-term and long-term exposure:

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)

Ammonia hydroxide Category 3 – Respiratory tract irritation

Numerical measures of toxicity:

There is no data available

12. Ecological information

Ecotoxicity

Toxicity:

Ammonia hydroxide Acute LC₅₀ = 37 ppm (96 hours) – Fresh water – Fish *Gambusia affinis* – Adult

Persistence and degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Other adverse effects:

No data available

13. Disposal considerations

Disposal methods:

Reuse, when possible. The hazard level of waste containing this product should be evaluated according to applicable regulations. Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Contaminated packaging:

Contaminated packaging must be recovered or disposed of in compliance with Federal and Provincial waste management regulations.

14. Transport information

	DOT	TDG	IATA	IMDG
UN number:	Not regulated <i>UN3082 if the quantity per single package or inner package is equal to or greater than 14285.7 lbs (6485.7 kg)*.</i>	Not regulated	Not regulated	Not regulated
Proper shipping name:	<i>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ammonium hydroxide)</i>			
Hazard class:	<i>9</i>			
Packing group:	<i>III</i>			
Environmental hazard:	<i>Reportable Quantity (RQ)</i>			
Special precautions:	<i>See RQ note*</i>			

RQ note (DOT): This product is regulated for transport when the quantity per single package or inner package is equal to or greater than 14285.7 lbs (6485.7 kg). When the quantity per package is lower than these values, this product is not regulated for transport.

15. Regulatory information

Safety, health and environmental regulations specific for this product in question:

U.S. Federal regulations:

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)
 Clean Air Act Section 602 Class I Substances
 Clean Air Act Section 602 Class II Substances
 DEA List I Chemicals (Precursor Chemicals)
 DEA List II Chemicals (Essential Chemicals)

TSCA 6 proposed risk management: Lead powder
 TSCA 8(a) CDR Exempt/Partial exemption: Not determined.
 Clean Water Act (CWA) 307: Chromium; Zinc powder - zinc dust (stabilized);
 Lead powder; Copper; Nickel; Arsenic
 Clean Water Act (CWA) 311: Ammonia; Sodium
 Listed
 Not listed
 Not listed
 Not listed
 Not listed

SARA 302/304

Composition/information on ingredient
 No products were found.
 SARA 304 RQ : Not applicable.

SARA 311/312

Classification

SKIN CORROSION/IRRITATION - Category 1B
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Composition/information on ingredients

Name	%	Classification
Ammonia hydroxide	5.0 – 10.0	ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION/IRRITATION - Category 1B SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Ammonia hydroxide	1336-21-6	5.0 – 10.0
Supplier notification	Ammonia hydroxide	1336-21-6	5.0 – 10.0

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

State regulations
Massachusetts

The following components are listed: Ammonia

New York

The following components are listed: Ammonia

New Jersey

The following components are listed: Ammonia

Pennsylvania

The following components are listed: Ammonia

California Prop. 65


WARNING: This product can expose you to chemicals including Lead powder, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including nickel and Arsenic, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
Lead powder	Yes	Yes
Nickel	-	-
Arsenic	Yes	-

International regulations
Chemical Weapon Convention List Schedules I, II & III Chemicals
Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States (TSCA 8b) : All components are active or exempted. No data available

16. Other information

SDS information

Version: 2
Date (dd/mm/yyyy): 04/04/2024
Prepared by: CFT Canada

Abbreviations:

TWAEV – Time-Weighted Average Exposure Value

STEV – Short Term Exposure Value

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product. This document must not be regarded as a guarantee on any specific product property. The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.