SAFETY DATA SHEET

Section 1. Identification

GHS product identifier : AZOGEN(TM)

Product code Other means of identification

Product type : Nitrogen complex from treated animal manure

Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Organic nitrogen complex fertilizer

Supplier's details : Développement Solugen Inc.

1020, rue du Parc Industriel, suite 101

Levis, Qc, G6Z 1C6

Canada

Emergency telephone number (with hours of

: 613-996-6666 or 1 888 226 8832 24/24

operation)

Section 2. Hazards identification

OSHA/HCS status

: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 1B SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract

irritation) - Category 3

AQUATIC HAZARD (ACUTE) - Category 2

GHS label elements

Hazard pictograms





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

: P280 - Wear protective gloves, protective clothing and eye or face protection.

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P261 - Avoid breathing vapor.

P264 - Wash thoroughly after handling.

Response

: P304 + P340, P310 - IF INHALED: Remove person to fresh air and keep comfortable

for breathing. Immediately call a POISON CENTER or doctor.

P301 + P310, P330, P331 - IF SWALLOWED: Immediately call a POISON CENTER or

doctor. Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353, P310 - IF ON SKIN (or hair): Take off immediately all

contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or

doctor.

P363 - Wash contaminated clothing before reuse.

P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor.

Storage

: P405 - Store locked up.

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national

and international regulations.

Hazards not otherwise classified

: None known.

Section 3. Composition/information on ingredients

Substance/mixture
Other means of

identification

: Mixture

Transparent liquid (yellowish) - ammonia smell

Ingredient name	%	CAS number
Ammonium hydroxide (ammonia)	≥ 5 - < 10	1336-21-6
Water	> 90 - < 95	7732-18-5
Ammonium bicarbonate	< 1	1066-33-7
p-cresol	< 0,01	108-95-2
indole	< 0,01	120-72-9
4-methylphenol	< 0,01	106-44-5
2-ethylphenol	< 0,01	90-00-6
Benzopropanoic acid	< 0,01	84268-36-0
Sulfur	< 1	7704-34-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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



Section 4. First aid measures

Description of necessary first aid measures

Eye contact

: Get medical attention immediately. Call a poison center or physician. 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.

Inhalation

- : Get medical attention immediately. Call a poison center or physician. 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.
- : Get medical attention immediately. Call a poison center or physician. 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. Clean shoes thoroughly before reuse.

Ingestion

: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage. **Inhalation** : May cause respiratory irritation.

Skin contact : Causes severe burns.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain watering redness

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

Skin contact: Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion : Adverse symptoms may include the following:

stomach pains



Section 4. First aid measures

person may need to be kept under medical surveillance for 48 hours.

: Get medical attention immediately. Call a poison center or physician. 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. Clean shoes thoroughly before reuse.

Skin contact Ingestion

: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage. **Inhalation** : May cause respiratory irritation.

Skin contact : Causes severe burns.

Ingestion: No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:

pain watering redness

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

Skin contact: Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion : Adverse symptoms may include the following:

stomach pains

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

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.

Specific treatments: No specific treatment.

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.

See toxicological information (Section 11)



Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

: None known.

Specific hazards arising from the chemical

Hazardous thermal decomposition products

: This material is toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

 Decomposition products may include the following materials: nitrogen oxides

Special protective actions for fire-fighters

: 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.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: 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.

For emergency responders:

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and 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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

: 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 occupational hygiene

: 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. See also Section 8 for additional information on hygiene measures. 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 (see Section 10) and food and drink. 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. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ammonia	None.

Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

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.

Eye/face 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.

Skin protection



Section 8. Exposure controls/personal protection

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.

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.

Other skin protection

: 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.

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.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state : Liquid. [Transparent.]

Color : Colorless.

Odor : Ammonia.

Odor threshold : Not available.

pH : 9.5 to 11

Melting point/freezing point : Not available.

Boiling point, initial boiling : Not available.

point, and boiling range

Flash point : Not available.
Evaporation rate : Not available.
Flammability : Not available.
Lower and upper explosion : Not available.

Lower and upper explosion limit/flammability limit

Vapor pressure : Not available.

Relative vapor density : Not available.

Relative density : 950 to 1000

Density : 950 to 1000 g/cm³
Solubility : Not available.
Solubility in water : Not available.
Partition coefficient: n- : Not applicable.

octanol/water
Auto-ignition temperature
Decomposition temperature

Not available.Not available.Not available.Not available.

Flow time (ISO 2431)
Particle characteristics

Viscosity



Section 9. Physical and chemical properties and safety characteristics

Median particle size : Not applicable.

Section 10. Stability and reactivity

Reactivity: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability: The product is stable.

Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials: Reactive or incompatible with the following materials: oxidizing materials.

Hazardous decomposition products

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonia	LD50 Oral	Rat	350 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Ammonia	Eyes - Severe irritant	Rabbit	-	250 µg	-
	Eyes - Severe irritant	Rabbit	-	0.5 minutes 1	-
				mg	

Sensitization

There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

Name		Route of exposure	Target organs
Ammonia	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)



Section 11. Toxicological information

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely

routes of exposure

: Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye damage.Inhalation : May cause respiratory irritation.

Skin contact: Causes severe burns.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:

pain watering redness

Inhalation : Adverse symptoms may include the following:

respiratory tract irritation

coughing

Skin contact: Adverse symptoms may include the following:

pain or irritation

redness

blistering may occur

Ingestion : Adverse symptoms may include the following:

stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate : No known significant effects or critical hazards.

effects

Potential delayed effects: No known significant effects or critical hazards.

Long term exposure

Potential immediate : No known significant effects or critical hazards.

effects

Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects

General : No known significant effects or critical hazards.
 Carcinogenicity : No known significant effects or critical hazards.
 Mutagenicity : No known significant effects or critical hazards.
 Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates



Section 11. Toxicological information

Product/ingredient name	Oral (mg/ kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/ I)
Transparent liquid - ammonia smell	5000	N/A	N/A	N/A	N/A
Ammonia	350	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Ammonia	Acute LC50 37 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours

Persistence and degradability

There is no data available.

Bioaccumulative potential

There is no data available.

Mobility in soil

Soil/water partition coefficient (K_{oc})

: Not available.

Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should 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 empty 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.



Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN3082	Not regulated.	Not regulated.
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Ammonia)	-	-
Transport hazard class(es)	9	-	-
Packing group	III	-	-
Environmental hazards	Yes.	No.	No.

AERG : 171

DOT-RQ Details
Additional information

DOT Classification

: Ammonia 1000 lbs / 454 kg [133.26 gal / 504.44 L]

: Non-bulk packages of this product are not regulated as hazardous materials in package sizes less than the product reportable quantity, unless transported by inland waterway. The marine pollutant mark is not required when transported on inland waterways in sizes of ≤5 L or ≤5 kg.

Reportable quantity 14285.7 lbs / 6485.7 kg [1.7573 gal / 6.652 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.

IATA

The environmentally hazardous substance mark may appear if required by other transportation regulations.

Special precautions for user

: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments

: Not available.

Section 15. Regulatory information

U.S. Federal regulations

: 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

Clean Air Act Section 112

(b) Hazardous Air Pollutants (HAPs)

: Listed

Clean Air Act Section 602 Class I Substances : Not listed



Section 15. Regulatory information

Clean Air Act Section 602

: Not listed

Class II Substances

DEA List I Chemicals

: Not listed

(Precursor Chemicals)

DEA List II Chemicals

: Not listed

(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

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		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	1336-21-6	≥5 - ≤10
Supplier notification	Ammonia	1336-21-6	≥5 - ≤10

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.

	•	Maximum acceptable dosage level
Lead powder	Yes.	Yes.
Nickel	-	-
Arsenic	Yes.	-



Section 15. Regulatory information

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
SKIN CORROSION/IRRITATION - Category 1B	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract	Calculation method
irritation) - Category 3	
AQUATIC HAZARD (ACUTE) - Category 2	Calculation method

History

Date of issue/Date of

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: 06/30/2023

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: 1.2

Internal code

: 611-001

Prepared by

: KMK Regulatory Services Inc.: ATE = Acute Toxicity Estimate

Key to abbreviations

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient

MARPOL = International Convention for the Prevention of Pollution From Ships, 1973

as modified by the Protocol of 1978. ("Marpol" = marine pollution)

N/A = Not available SGG = Segregation Group UN = United Nations

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.

