

## SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Revision Date 03/24/2020

Version 1.5

### SECTION 1. Identification

#### Product identifier

Product number AX1303  
Product name Ammonium Hydroxide GR ACS

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

Identified uses Reagent for analysis

#### Details of the supplier of the safety data sheet

Company Millipore (Canada) Ltd. | 2149 Winston Park Dr. | Oakville | Ontario L6H 6J8 | Canada | General Inquiries: +1 905 829 9500 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)  
MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.

**Emergency telephone** 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

### SECTION 2. Hazards identification

#### GHS Classification

Skin corrosion, Category 1B, H314  
Serious eye damage, Category 1, H318  
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

#### GHS-Labeling

*Hazard pictograms*



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## *Signal Word*

Danger

## *Hazard Statements*

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

## *Precautionary Statements*

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

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

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

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/shower.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see supplemental first aid instructions on this label).

P363 Wash contaminated clothing before reuse.

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

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Chemical nature

Aqueous ammoniacal solution.

### **Hazardous ingredients**

*Chemical name (Concentration)*

CAS-No.

*ammonia solution (>= 20 % - < 30 % )*

1336-21-6

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

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### *General advice*

First aider needs to protect himself.

### *Inhalation*

After inhalation: fresh air. Call in physician.

### *Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

### *Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

### *Ingestion*

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

### **Most important symptoms and effects, both acute and delayed**

Irritation and corrosion, bronchitis, Cough, Shortness of breath, gastric pain, Unconsciousness, Bloody vomiting, Nausea, collapse, shock, Convulsions, Lung edema, death  
Risk of blindness!

### **Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Not combustible.

Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

nitrogen oxides

### **Advice for firefighters**

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### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### *Further information*

Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### **Environmental precautions**

Do not empty into drains.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® OH<sup>-</sup>, Art. No. 101596). Dispose of properly. Clean up affected area.

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

Observe label precautions.

### **Conditions for safe storage, including any incompatibilities**

#### *Requirements for storage areas and containers*

No metal or light-weight-metal containers.

Tightly closed.

Store at room temperature.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Components

Basis	Value	Threshold limits	Remarks
<i>ammonia solution 1336-21-6</i>			
CAD BC OEL	Short Term Exposure Limit (STEL):	35 ppm	
	Time Weighted Average (TWA):	25 ppm	
CAD MB OEL	Time Weighted Average (TWA):	25 ppm	
	Short Term Exposure Limit (STEL):	35 ppm	
CAD ON OEL	Time Weighted Average (TWAEV):	25 ppm	
	Short Term Exposure Limit (STEV):	35 ppm	

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream.  
Wash hands and face after working with substance.

#### Eye/face protection

Tightly fitting safety goggles

#### Hand protection

full contact:

Glove material: butyl-rubber  
Glove thickness: 0.7 mm  
Break through time: 480 min

splash contact:

Glove material: Nitrile rubber  
Glove thickness: 0.40 mm  
Break through time: 240 min

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The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 730 Camatril® -Velours (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment:*  
protective clothing

### *Respiratory protection*

required when vapors/aerosols are generated.

Recommended Filter type: Filter K (acc. to DIN 3181) for NH<sub>3</sub>

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer.

These measures have to be properly documented.

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## **SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless
Odor	stinging ammoniacal
Odor Threshold	0.03 - 0.05 ppm Ammonia
pH	> 12 at 68 °F (20 °C) strongly alkaline
Melting point	ca. -98 °F (-72 °C)
Boiling point/boiling range	ca. 90 °F (32 °C)
Flash point	Not applicable
Evaporation rate	No information available.

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Flammability (solid, gas)	No information available.
Lower explosion limit	15.4 %(V)
Upper explosion limit	33.6 %(V)
Vapor pressure	635 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	0.90 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble
Partition coefficient: n-octanol/water	log Pow: -1.38 (experimental) (anhydrous substance) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Minimum ignition energy	380 - 680 mJ

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### SECTION 10. Stability and reactivity

#### Reactivity

See below

#### Chemical stability

Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.

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### **Possibility of hazardous reactions**

A risk of explosion and/or of toxic gas formation exists with the following substances:

Oxidizing agents, Mercury, Oxygen, silver compounds, nitrogen trichloride, hydrogen peroxide, silver, antimony hydride, halogens, Acids, Calcium, Chlorine, Chlorites, auric salts, perchlorates, sodium hypochlorite, mercury compounds, halogen oxides

Heavy metals, Heavy metal salts, Acid chlorides, Acid anhydrides

Risk of ignition or formation of inflammable gases or vapors with:

Boranes, Boron, Oxides of phosphorus, Nitric acid, silicon compounds, chromium(VI) oxide, chromyl chloride

Exothermic reaction with:

Acetaldehyde, Acrolein, Barium, boron compounds, Bromine, halogen-halogen compounds, hydrogen bromide, silane, Hydrogen chloride gas, halogen compounds, dimethylsulfate, nitrogen oxides, Fluorine, Hydrogen fluoride, chlorates, carbon dioxide

Ethylene oxide, polymerizable

### **Conditions to avoid**

Heating.

### **Incompatible materials**

Aluminum, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals

### **Hazardous decomposition products**

in the event of fire: See section 5.

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## **SECTION 11. Toxicological information**

### **Information on toxicological effects**

*Likely route of exposure*

Inhalation, Eye contact, Skin contact, Ingestion

*Acute oral toxicity*

LDLO human: 43 mg/kg (29% solution) (RTECS)

Symptoms: gastric pain, Bloody vomiting, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

*Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, bronchitis, Possible damages:, damage of respiratory tract



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## *Skin irritation*

Rabbit

Result: Severe irritations  
(29% solution) (RTECS)

Dermatitis Necrosis

Mixture causes burns.

## *Eye irritation*

Rabbit

Result: Severe irritations  
(29% solution) (RTECS)

Mixture causes serious eye damage. Risk of blindness!

## *Specific target organ systemic toxicity - single exposure*

May cause respiratory irritation.

Target Organs: Respiratory system

## *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

Systemic effects:

Nausea, collapse, shock, Unconsciousness, Convulsions

Lung edema, Possible effects:

death

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## **Components**

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*ammonia solution*  
No information available.

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### SECTION 12. Ecological information

#### Ecotoxicity

No information available.

#### Persistence and degradability

*Biodegradability*

Not readily biodegradable.

#### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: -1.38

(experimental)

(anhydrous substance) Bioaccumulation is not expected.

#### Mobility in soil

No information available.

*Additional ecological information*

Biological effects:

Harmful effect due to pH shift.

Forms toxic and corrosive mixtures with water even if diluted.

Discharge into the environment must be avoided.

#### Components

*ammonia solution*

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

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### SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

**UN number** UN 2672  
**Proper shipping name** AMMONIA SOLUTION  
**Class** 8  
**Packing group** III  
**Environmentally hazardous** --

### Air transport (IATA)

**UN number** UN 2672  
**Proper shipping name** AMMONIA SOLUTION  
**Class** 8  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** no

### Sea transport (IMDG)

**UN number** UN 2672  
**Proper shipping name** AMMONIA SOLUTION  
**Class** 8  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** yes  
EmS F-A S-B

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## SECTION 15. Regulatory information

### United States of America

### Canada

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

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## Notification status

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL

## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

*Hazard pictograms*



*Signal Word*

Danger

*Hazard Statements*

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

*Precautionary Statements*

Prevention

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.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/physician.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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