

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 03/24/2020

Version 1.3

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 EMD Millipore Corporation | 400 Summit Drive | Burlington | Massachusetts 01803 | United States of America | General Inquiries: +1 800-645-5476 | 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.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous ammoniacal solution.

Hazardous ingredients

Chemical name (Concentration)

CAS-No.

ammonia solution (>= 10 % - < 30 %)

1336-21-6

Exact percentages are being withheld as a trade secret.

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.

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.

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⁻, Art. No. 101596). Dispose of properly. Clean up affected area.

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>			
ACGIH	Time Weighted Average (TWA):	25 ppm	
	Short Term Exposure Limit (STEL):	35 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	25 ppm 18 mg/m ³	
	Short Term Exposure Limit (STEL):	35 ppm 27 mg/m ³	
OSHA_TRANS	PEL:	50 ppm 35 mg/m ³	
Z1A	Short Term Exposure Limit (STEL):	35 ppm 27 mg/m ³	

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).

Other protective equipment:
protective clothing

Respiratory protection
required when vapors/aerosols are generated.
Recommended Filter type: Filter K (acc. to DIN 3181) for NH₃
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.

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 ³ 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

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.

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.

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.

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

SECTION 15. Regulatory information

United States of America

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Components

ammonia solution	1336-21-6	28 %
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SARA 302

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Product name

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No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Components

ammonia solution

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Components

ammonia solution

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Components

ammonia solution

Pennsylvania Right To Know

Components

ammonia solution

New Jersey Right To Know

Components

ammonia solution

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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.

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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.

Full text of H-Statements referred to under sections 2 and 3.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

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.

Revision Date 03/24/2020

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

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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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