



# SAFETY DATA SHEET

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

Revision Date 01/27/2015

Version 1.1

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

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Corrosive to Metals, Category 1, H290  
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



*Signal Word*  
Danger

#### Hazard Statements

H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.

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## *Precautionary Statements*

P234 Keep only in original container.

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): Remove/ Take off immediately all contaminated clothing.

Rinse skin with water/ shower.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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 or doctor/ physician.

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

P363 Wash contaminated clothing before reuse.

P390 Absorb spillage to prevent material damage.

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

P405 Store locked up.

P406 Store in corrosive resistant stainless steel container with a resistant inliner.

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 ( $\geq 10\%$  -  $< 30\%$ )*

1336-21-6

Exact percentages are being withheld as a trade secret.

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

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

#### *Inhalation*

After inhalation: fresh air. Call in physician.

#### *Skin contact*

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

#### *Eye contact*

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

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## *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  
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**

#### *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**

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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. Chemizorb® OH<sup>-</sup>, 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

Tightly closed.

Store at room temperature.

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

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 <sup>3</sup>	
	Short Term Exposure Limit (STEL):	35 ppm 27 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	50 ppm 35 mg/m <sup>3</sup>	
Z1A	Short Term Exposure Limit (STEL):	35 ppm 27 mg/m <sup>3</sup>	

### 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

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## *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.

## *Other protective equipment:*

protective clothing

## *Respiratory protection*

required when vapors/aerosols are generated.

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.

## SECTION 9. Physical and chemical properties

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

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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
Corrosion	May be corrosive to metals.

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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.

#### Possibility of hazardous reactions

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

Oxidizing agents, Phosgene, Oxides of phosphorus, Mercury, acids, Nitric acid, Oxygen, sulfur dioxide, hydrogen sulfide, silver compounds, nitrogen oxides, nitrogen trichloride, hydrogen peroxide, silver, Lead, Zinc, Heavy metals, Heavy metal salts, strong alkalis, Acrolein, antimony hydride, Boron, hydrogen bromide, chlorates, Hydrogen chloride gas, chromium(VI) oxide, chromyl chloride, dimethylsulfate, Ethylene oxide, Hydrogen fluoride, halogens, halogen-halogen compounds, halogen oxides, carbon dioxide, Acids

#### Conditions to avoid

Heating.

#### Incompatible materials

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

#### 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.

#### *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!

#### *Sensitization*

Sensitization test: Guinea pig

Result: negative  
(anhydrous substance) (IUCLID)

#### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative  
(anhydrous substance) (IUCLID)

Ames test

Escherichia coli

Result: negative  
(anhydrous substance) (IUCLID)

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

Mixture may cause respiratory irritation.

#### *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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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	carcinogen by OSHA.
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, Shortness of breath, Unconsciousness

Further data:

Handle in accordance with good industrial hygiene and safety practice.

## Ingredients

*ammonia solution*

No information available.

## SECTION 12. Ecological information

### Ecotoxicity

*Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 0.53 mg/l; 96 h (anhydrous substance) (Lit.)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 24 mg/l; 48 h (anhydrous substance) (Lit.)

*Toxicity to bacteria*

EC50 Photobacterium phosphoreum: 2 mg/l; 5 min (anhydrous substance) (Lit.)

### 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 mixtures in water, dilution measures notwithstanding.

Further information on ecology

Discharge into the environment must be avoided.

## Ingredients



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*ammonia solution*

No information available.

## 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.

## 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:

#### *Ingredients*

ammonia solution	1336-21-6	28 %
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#### SARA 302

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

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### Clean Water Act

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

#### *Ingredients*

ammonia solution

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

#### *Ingredients*

ammonia solution

### DEA List I

Not listed

### DEA List II

Not listed

### US State Regulations

#### Massachusetts Right To Know

##### *Ingredients*

ammonia solution

#### Pennsylvania Right To Know

##### *Ingredients*

ammonia solution

#### New Jersey Right To Know

##### *Ingredients*

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.

KOREA: Not in compliance with the inventory

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

#### *Hazard pictograms*



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### *Signal Word*

Danger

### *Hazard Statements*

H290 May be corrosive to metals.

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.**

H290 May be corrosive to metals.

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](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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