

## SAFETY DATA SHEET

Version 8.1  
Revision Date 12/22/2020  
Print Date 07/26/2021

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Ammonium Hydroxide GR ACS  
Product Number : AX1303  
Brand : Millipore

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

Identified uses : Reagent for analysis

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

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

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Skin corrosion (Category 1), H314  
Serious eye damage (Category 1), H318  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 2), H411

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)

H314  
H335

Causes severe skin burns and eye damage.  
May cause respiratory irritation.

H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
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.
P273	Avoid release to the environment.
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 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
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/ doctor.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
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.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Component		Classification	Concentration
<b>ammonia solution</b>			
CAS-No.	1336-21-6	Skin Corr. 1B; Eye Dam. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H314, H318, H335, H400, H411 Concentration limits: >= 5 %: STOT SE 3, H335; M-Factor - Aquatic Acute: 10	>= 20 - < 30 %
EC-No.	215-647-6		
Index-No.	007-001-01-2		
Registration number	01-2119488876-14-XXXX		

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

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aider needs to protect himself.

**If inhaled**

After inhalation: fresh air. Call in physician.

**In case of skin contact**

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

**In case of eye contact**

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

**If swallowed**

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

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 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.

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

Nitrogen oxides (NO<sub>x</sub>)

Not combustible.

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

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

nitrogen oxides

**5.3 Advice for firefighters**

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

**5.4 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****6.1 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.

For personal protection see section 8.

## 6.2 Environmental precautions

Do not empty into drains.

## 6.3 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 neutralising material (e.g. Chemizorb® OH<sup>-</sup>, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

## 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Observe label precautions.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

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

#### Storage conditions

No metal or light-weight-metal containers.

Tightly closed.

Store at room temperature.

Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
ammonia solution	1336-21-6	TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	35 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	25 ppm 18 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		ST	35 ppm 27 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

### 8.2 Exposure controls

#### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## Personal protective equipment

### Eye/face protection

Tightly fitting safety goggles

### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. 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)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. 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)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.40 mm

Break through time: 240 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

### Body Protection

protective clothing

### Respiratory protection

required when vapours/aerosols are generated.

### Control of environmental exposure

Do not empty into drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |   |
|--|---|
| a) Appearance                              | Form: liquid<br>Color: colorless          |
| b) Odor                                    | stinging, ammoniacal                      |
| c) Odor Threshold                          | 0.03 - 0.05 ppm - Ammonia                 |
| d) pH                                      | > 12 at 20 °C (68 °F) - strongly alkaline |
| e) Melting point/freezing point            | Melting point: ca.-72 °C (ca.-98 °F)      |
| f) Initial boiling point and boiling range | ca.32 °C ca.90 °F                         |
| g) Flash point                             | ( )Not applicable                         |
| h) Evaporation rate                        | No data available                         |
| i) Flammability (solid, gas)               | No data available                         |

j) Upper/lower flammability or explosive limits	Upper explosion limit: 33.6 %(V) Lower explosion limit: 15.4 %(V)
k) Vapor pressure	635 hPa at 20 °C (68 °F)
l) Vapor density	No data available
m) Relative density	0.90 g/cm <sup>3</sup> at 20 °C (68 °F)
n) Water solubility	soluble
o) Partition coefficient: n-octanol/water	log Pow: -1.38 - (anhydrous substance), Bioaccumulation is not expected.
p) Autoignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

Minimum ignition energy	380 - 680 mJ
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

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

### 10.3 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 vapours 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  
polymerisable

#### **10.4 Conditions to avoid**

Heating.

#### **10.5 Incompatible materials**

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

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Mixture**

##### **Acute toxicity**

LDLo Oral - Human - 43 mg/kg

Remarks:

(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.

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

Dermal: No data available

No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Severe irritations

Remarks:

(29% solution)

(RTECS)

Dermatitis Necrosis

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Severe irritations

Remarks:

(29% solution)

(RTECS)

Mixture causes serious eye damage. Risk of blindness!

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

No data available

#### **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.

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.

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

#### **Reproductive toxicity**

No data available

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

Mixture may cause respiratory irritation. - Respiratory system

Acute oral toxicity - 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 - mucosal irritations, Cough, Shortness of breath, bronchitis, Possible damages:, damage of respiratory tract

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

No data available

#### **Aspiration hazard**

No data available

### **11.2 Additional Information**

Not available

Cough

Shortness of breath

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bronchitis  
gastric pain  
Bloody vomiting  
Nausea  
collapse  
shock  
Unconsciousness

Other dangerous properties can not be excluded.  
Handle in accordance with good industrial hygiene and safety practice.

## Components

### ammonia solution

#### Acute toxicity

No data available

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Dermal: No data available

No data available

#### Skin corrosion/irritation

Causes skin burns.

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

May cause respiratory irritation.

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

Biodegradability                      Remarks: No data available

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### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

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.

No data available

#### Components

##### ammonia solution

Toxicity to fish

flow-through test LC50 - Pimephales promelas (fathead minnow) - 0.068 mg/l - 96 h

Remarks: (in analogy to similar products) (ECHA)

The value is given in analogy to the following substances: ammonium sulphate

Toxicity to daphnia and other aquatic invertebrates

static test LC50 - Daphnia magna (Water flea) - 101 mg/l - 48 h

Remarks: (ECHA) anhydrous

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local No mixing with other waste. Handle uncleaned containers like the product See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

#### DOT (US)

UN number: 2672 Class: 8

Packing group: III

Proper shipping name: Ammonia solution

Reportable Quantity (RQ): 3571 lbs

1)

Marine pollutant: yes Poison Inhalation Hazard: No

#### IMDG

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UN number: 2672 Class: 8 Packing group: III EMS-No: F-A, S-B  
Proper shipping name: AMMONIA SOLUTION  
Marine pollutant : yes  
Marine pollutant : yes

**IATA**

UN number: 2672 Class: 8 Packing group: III  
Proper shipping name: Ammonia solution

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**SECTION 15: Regulatory information**

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

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

	CAS-No.	Revision Date
ammonia solution	1336-21-6	2007-03-01

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information**

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](mailto:mlsbranding@sial.com).

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