

SAFETY DATA SHEET

Creation Date 23-November-2009

Revision Date 28-December-2021

Revision Number 6

1. Identification

Product Name Ammonium hydroxide 35%

Cat No. : AC460800000; AC460801000

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Manufacturer

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

| | |
|---|--------------|
| Skin Corrosion/Irritation | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system. | |

Label Elements

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage
May cause respiratory irritation

**Precautionary Statements****Prevention**

Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
IF INHALED: Remove person to fresh air and keep comfortable for breathing
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
Wash contaminated clothing before reuse

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Very toxic to aquatic organisms

3. Composition/Information on Ingredients

| Component | CAS-No | Weight % |
|--------------------|-----------|----------|
| Water | 7732-18-5 | 65 |
| Ammonium hydroxide | 1336-21-6 | 35 |
| Ammonia | 7664-41-7 | - |

4. First-aid measures

General Advice

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation

If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately.

Ingestion

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.

Most important symptoms/effects

Causes burns by all exposure routes. . Product is a corrosive material. Use of gastric

Notes to Physician

lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Treat symptomatically

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. CO ₂ , dry chemical, dry sand, alcohol-resistant foam. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | No information available |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Oxidizing Properties | Not oxidising |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Nitrogen oxides (NO_x). Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
3

Flammability
1

Instability
0

Physical hazards
N/A

6. Accidental release measures

| | |
|---|---|
| Personal Precautions | Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. |
| Environmental Precautions | Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage. |
| Methods for Containment and Clean Up | Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water. |

7. Handling and storage

| | |
|-----------------|---|
| Handling | Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe mist/vapors/spray. Contents may develop pressure upon prolonged storage. |
| Storage. | Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Contents may develop pressure upon prolonged storage. Incompatible Materials. Strong oxidizing agents. Acids. Metals. Aluminium. Zinc. copper. Copper alloys. Fluorine. |

Halogens.

8. Exposure controls / personal protection

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

| Component | Alberta | British Columbia | Ontario TWAEV | Quebec | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|-----------|--|-----------------------------|-----------------------------|--|-----------------------------|--|---|
| Ammonia | TWA: 25 ppm TWA: 17 mg/m ³ STEL: 35 ppm STEL: 24 mg/m ³ | TWA: 25 ppm STEL: 35 ppm | TWA: 25 ppm STEL: 35 ppm | TWA: 25 ppm TWA: 17 mg/m ³ STEL: 35 ppm STEL: 24 mg/m ³ | TWA: 25 ppm STEL: 35 ppm | (Vacated) STEL: 35 ppm (Vacated) STEL: 27 mg/m ³ TWA: 50 ppm TWA: 35 mg/m ³ | IDLH: 300 ppm TWA: 25 ppm TWA: 18 mg/m ³ STEL: 35 ppm STEL: 27 mg/m ³ |

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

| Glove material | Breakthrough time | Glove thickness | Glove comments |
|----------------|-------------------|-----------------|------------------------|
| Butyl rubber | > 480 minutes | 0.5 mm | Splash protection only |
| Viton (R) | > 480 minutes | 0.4 mm | |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Recommended Filter type: Inorganic gases and vapours filter Type B Grey or Ammonia and organic ammonia derivatives filter Type K Green conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|---------------------|-------------------|
| Physical State | Liquid |
| Appearance | Colorless |
| Odor | Ammonia-like |
| Odor Threshold | 5 ppm |
| pH | > 12 @ 20°C |
| Melting Point/Range | No data available |

| | |
|--|--------------------------|
| Boiling Point/Range | No information available |
| Flash Point | No information available |
| Evaporation Rate | No information available |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | No data available |
| Lower | No data available |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Specific Gravity | 0.88 - 0.91 |
| Solubility | No information available |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Viscosity | No information available |
| Molecular Formula | H5 N O |
| Molecular Weight | 35.05 |

10. Stability and reactivity

| | |
|----------------------------------|--|
| Reactive Hazard | None known, based on information available |
| Stability | Stable under normal conditions. |
| Conditions to Avoid | Incompatible products. Excess heat. |
| Incompatible Materials | Strong oxidizing agents, Acids, Metals, Aluminium, Zinc, copper, Copper alloys, Fluorine, Halogens |
| Hazardous Decomposition Products | Nitrogen oxides (NOx), Thermal decomposition can lead to release of irritating gases and vapors |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------|--------------------------|-------------|---|
| Water | - | - | - |
| Ammonium hydroxide | LD50 > 350 mg/kg (Rat) | Not listed | Not listed |
| Ammonia | LD50 = 350 mg/kg (Rat) | Not listed | LC50 = 9850 mg/m ³ (Rat) 1 h LC50 = 13770 mg/m ³ (Rat) 1 h |

Toxicologically Synergistic No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|-----------------|--|
| Irritation | Causes burns by all exposure routes |
| Sensitization | No information available |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|--------------------|-----------|------------|------------|------------|------------|------------|
| Water | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ammonium hydroxide | 1336-21-6 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ammonia | 7664-41-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|--------------------|------------------|--|-----------------------|---|
| Ammonium hydroxide | - | 0.53 mg/l LC50 96h 0.75 - 3.4 mg/l LC50 96h 8.2 mg/L LC50 96h | - | EC50: 0.66 mg/L/48h |
| Ammonia | Not listed | LC50: 0.26 - 4.6 mg/L, 96h (Lepomis macrochirus) LC50: = 1.17 mg/L, 96h flow-through (Lepomis macrochirus) LC50: 0.73 - 2.35 mg/L, 96h (Pimephales promelas) LC50: = 5.9 mg/L, 96h static (Pimephales promelas) LC50: > 1.5 mg/L, 96h (Poecilia reticulata) LC50: = 1.19 mg/L, 96h static (Poecilia reticulata) LC50: = 0.44 mg/L, 96h (Cyprinus carpio) | EC50 = 2.0 mg/L 5 min | EC50 = 25.4 mg/L, 48h (Daphnia magna) NOEC = 0.79 mg/L (Daphnia magna) |

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN2672
 Proper Shipping Name AMMONIA SOLUTION
 Hazard Class 8
 Packing Group III

TDG

UN-No UN2672
 Proper Shipping Name AMMONIA SOLUTION
 Hazard Class 8
 Packing Group III

IATA

UN-No UN2672
 Proper Shipping Name AMMONIA SOLUTION
 Hazard Class 8
 Packing Group III

IMDG/IMO

UN-No UN2672
 Proper Shipping Name AMMONIA SOLUTION
 Hazard Class 8
 Packing Group III

15. Regulatory information

International Inventories

| Component | CAS-No | DSL | NDSL | TSCA | TSCA Inventory notification - Active-Inactive | EINECS | ELINCS | NLP |
|--------------------|-----------|-----|------|------|---|-----------|--------|-----|
| Water | 7732-18-5 | X | - | X | ACTIVE | 231-791-2 | - | - |
| Ammonium hydroxide | 1336-21-6 | X | - | X | ACTIVE | 215-647-6 | - | - |
| Ammonia | 7664-41-7 | X | - | X | ACTIVE | 231-635-3 | - | - |

| Component | CAS-No | IECSC | KECL | ENCS | ISHL | TCSI | AICS | NZIoC | PICCS |
|--------------------|-----------|-------|----------|------|------|------|------|-------|-------|
| Water | 7732-18-5 | X | KE-35400 | X | - | X | X | X | X |
| Ammonium hydroxide | 1336-21-6 | X | KE-01688 | X | X | X | X | X | X |
| Ammonia | 7664-41-7 | X | KE-01625 | X | X | X | X | X | X |

Legend:

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

| Component | Canada - National Pollutant Release Inventory (NPRI) | Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances | Canada's Chemicals Management Plan (CEPA) |
|-----------|--|--|---|
| Ammonia | Part 1, Group A Substance | Schedule I | |

Other International Regulations**Authorisation/Restrictions according to EU REACH**

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--------------------|---|---|---|
| Ammonium hydroxide | - | Use restricted. See item 75. (see link for restriction details) Use restricted. See item 65. (see link for restriction details) | - |
| Ammonia | - | Use restricted. See item 75. (see link for restriction details) | - |

<https://echa.europa.eu/substances-restricted-under-reach>

Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component | CAS-No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|--------------------|-----------|----------|------------------------------|---------------------------|--|
| Water | 7732-18-5 | Listed | Not applicable | Not applicable | Not applicable |
| Ammonium hydroxide | 1336-21-6 | Listed | Not applicable | Not applicable | Not applicable |
| Ammonia | 7664-41-7 | Listed | Not applicable | Not applicable | Not applicable |

| Component | CAS-No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|--------------------|-----------|---|--|----------------------------|------------------------------------|
| Water | 7732-18-5 | Not applicable | Not applicable | Not applicable | Not applicable |
| Ammonium hydroxide | 1336-21-6 | Not applicable | Not applicable | Not applicable | Not applicable |
| Ammonia | 7664-41-7 | 50 tonne | 200 tonne | Not applicable | Not applicable |

16. Other information

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Revision Summary

This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS