Material Safety Data Sheet

According to OSHA and ANSI

Printing date 04/21/2011 Reviewed on 01/22/2010

1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Ammonium hydroxide, 50% v/v Aqueous Solution

Stock number: 35574
CAS Number:
7664-41-7
EINECS Number:
215-647-6
Index number:
007-001-01-2
Relevant identified uses of the substance or mixture and uses advised against.
Sector of Use SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency telephone number:
During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Hazards identification

Classification of the substance or mixture

GHS05 Corrosion

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C; Corrosive

R34: Causes burns.

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:
C Corrosive

Risk phrases:
34 Causes burns.

Safety phrases:
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.
Hazard description:
WHMIS classification

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Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	3
FIRE	0
REACTIVITY	2

Health (acute effects) = 3
Flammability = 0
Reactivity = 2

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
(CAS#) Description:
Ammoniia (CAS# 7664-41-7): 14-15%
Water (CAS# 7732-18-5): 85-86%
Identification number(s):
EINECS Number: 215-647-6
Index number: 007-001-01-2

4 First aid measures

Description of first aid measures
General information Immediately remove any clothing soiled by the product.
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek immediate medical advice.

5 Firefighting measures

Extinguishing media
Suitable extinguishing agents
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
For safety reasons unsuitable extinguishing agents Halogenated extinguisher
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions:
Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

7 Handling and storage

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Information about protection against explosions and fires: The product is not flammable

Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility:
Do not store together with acids.
Store away from metals.
Keep away from heat and direct sunlight.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters
Components with limit values that require monitoring at the workplace:

Ammonia

	ppm
ACGIH TLV	25; 35-STEL
Austria MAK	25
Belgium TWA	25; 35-STEL
Denmark TWA	25
Finland TWA	25; 40-STEL
France VME	25; 50-VLE
Germany MAK	50
Hungary TWA	18; 27-STEL
Japan OEL	25
Korea TLV	25; 35-STEL
Netherlands MAC-TGG	25
Norway TWA	25
Poland TWA	20 mg/m3; 27 mg/m3-STEL
Russia TWA	25; 20 mg/m3-STEL
Sweden NGV	25; 50-TGV
Switzerland MAK-W	25; 50-KZG-W
United Kingdom TWA	25; 35-STEL
OSHA PEL	50

Additional information: No data

Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands: Impervious gloves
Eye protection:
Safety glasses
Tightly sealed goggles

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Full face protection
Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Liquid
Color:	Colorless
Odor:	Ammonia-like
Odour threshold:	Not determined.
pH-value:	Not determined.
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flash point:	Not determined
Flammability (solid, gaseous)	Not applicable.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68 °F):	0.94 g/cm³ (7.844 lbs/gal)
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with	
Water:	Fully miscible
Segregation coefficient (n-octonol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Danger of receptacles bursting because of high vapor pressure if heated
Several incidents involving sudden "boiling" of concentrated ammonia solutions have been reported.
Incompatible materials:
Acids
Halogens
Oxidizing agents
Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.
Heat
Light

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Hazardous decomposition products:
Ammonia
Nitrogen oxides

11 Toxicological information

Information on toxicological effects
Acute toxicity:
LD/LC50 values that are relevant for classification:
ORL-HMN LDLo: 43 MG/KG (SOLUTIONS 12-44% NH3)
ORL-RAT LD50: 350 MG/KG (SOLUTIONS 12-44% NH3)
INH-HMN LCLo: 5000 PPM (SOLUTIONS 12-44% NH3)
EYE-RBT: 44 UG: SEV (SOLUTIONS 12-44% NH3)
Primary irritant effect:
on the skin:
Corrosive effect on skin and mucous membranes.
Irritant to skin and mucous membranes.
on the eye:
Strong corrosive effect.
Irritating effect.
Sensitization: No sensitizing effects known.
Subacute to chronic toxicity:
Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.
Additional toxicological information:
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity
Acquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Do not allow material to be released to the environment without proper governmental permits.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

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14 Transport information

DOT regulations:

Hazard class:	8
Identification number:	UN2672
Packing group:	III
Proper shipping name (technical name):	AMMONIA SOLUTION
Label	corrosive

Land transport ADR/RID (cross-border)

ADR/RID class:	8 (C5) Corrosive substances
Danger code (Kemler):	80
UN-Number:	2672
Packaging group:	III
UN proper shipping name:	2672 AMMONIA SOLUTION

Maritime transport IMDG:

IMDG Class:	8
UN Number:	2672
Label	8
Packaging group:	III
Marine pollutant:	No
Segregation groups	Alkalis
Proper shipping name:	AMMONIA SOLUTION

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	8
UN/ID Number:	2672
Label	8
Packaging group:	III
Proper shipping name:	AMMONIA SOLUTION

UN "Model Regulation": UN2672, AMMONIA SOLUTION, 8, III
Special precautions for user Warning: Corrosive substances
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

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

Product related hazard informations:

Hazard symbols:
C Corrosive

Risk phrases:
34 Causes burns.

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Safety phrases:
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:
For use only by technically qualified individuals.
This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact:
Zachariah C. Holt
Global EHS Manager
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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