

## 1. Identification

<b>Product identifier</b>	<b>AMMONIUM HYDROXIDE SOLUTION, 1 N</b>	
<b>Other means of identification</b>		
<b>Product code</b>	3553	
<b>Recommended use</b>	professional, scientific and technical activities: other professional, scientific and technical activities	
<b>Recommended restrictions</b>	None known.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Company name</b>	GFS Chemicals, Inc.	
<b>Address</b>	P.O. Box 245 Powell OH 43065 US	
<b>Telephone</b>	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
<b>Website</b>	www.gfschemicals.com	
<b>E-mail</b>	service@gfschemicals.com	
<b>Emergency phone number</b>	Emergency Assistance	Chemtrec 800-424-9300

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
<b>OSHA hazard(s)</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Warning	
<b>Hazard statement</b>	Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Wear protective gloves. Wear eye/face protection.	
<b>Response</b>	IF ON SKIN: Wash with plenty of soap and water. 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. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention.	
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.	
<b>Disposal</b>	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	Not classified.	
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3

## Supplemental information

### Precautionary statement

#### Prevention

Avoid release to the environment.

#### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

## 3. Composition/information on ingredients

### Mixtures

Hazardous components		
Chemical name	CAS number	%
AMMONIA	7664-41-7	1.74
Non-hazardous components		
Chemical name	CAS number	%
WATER	7732-18-5	98.26

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

### Inhalation

Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.

### Skin contact

Remove contaminated clothing. Wash off with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.

### Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

### Ingestion

Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

### Most important symptoms/effects, acute and delayed

Irritation of eyes and mucous membranes. Irritant effects.

### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Wash contaminated clothing before reuse.

## 5. Fire-fighting measures

### Suitable extinguishing media

Use extinguishing agent suitable for type of surrounding fire. Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

### Unsuitable extinguishing media

None known.

### Specific hazards arising from the chemical

Not applicable.

### Special protective equipment and precautions for firefighters

Wear suitable protective equipment.

### Fire-fighting equipment/instructions

Water runoff can cause environmental damage.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ensure adequate ventilation. Wear appropriate personal protective equipment.

**Methods and materials for containment and cleaning up**

This product is miscible in water. Stop the flow of material, if this is without risk.

Large Spills: Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible. Neutralize with acid. Flush to sewer if local regulations permit. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.

**Environmental precautions**

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

**7. Handling and storage**

**Precautions for safe handling**

Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

**Conditions for safe storage, including any incompatibilities**

Keep container tightly closed. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
AMMONIA (CAS 7664-41-7)	PEL	35 mg/m3 50 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value
AMMONIA (CAS 7664-41-7)	STEL	35 ppm
	TWA	25 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
AMMONIA (CAS 7664-41-7)	STEL	27 mg/m3 35 ppm
	TWA	18 mg/m3 25 ppm

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Chemical goggles are recommended.

**Skin protection**

**Hand protection**

Wear protective gloves.

**Other**

Wear appropriate chemical resistant clothing. Wear protective gloves.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards**

Not available.

**General hygiene considerations**

Avoid contact with eyes. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

**Appearance**

Clear.

**Physical state**

Liquid.

**Form**

Liquid.

**Color**

Colorless.

<b>Odor</b>	Ammoniacal.
<b>Odor threshold</b>	Not available.
<b>pH</b>	11
<b>Melting point/freezing point</b>	32 °F (0 °C) estimated
<b>Initial boiling point and boiling range</b>	212 °F (100 °C) estimated
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Not applicable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	Not available.
<b>Solubility(ies)</b>	Completely miscible.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	0.99 g/cm <sup>3</sup> estimated
<b>Percent volatile</b>	100 %
<b>Specific gravity</b>	0.99 estimated

## 10. Stability and reactivity

<b>Reactivity</b>	Not available.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	None under normal conditions.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Ammonia.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Based on available data, the classification criteria are not met.
<b>Inhalation</b>	May cause irritation to the respiratory system.
<b>Skin contact</b>	Not available.
<b>Eye contact</b>	Causes serious eye irritation.

**Symptoms related to the physical, chemical and toxicological characteristics** Irritant effects.

### Information on toxicological effects

#### Acute toxicity

Product	Species	Test Results
AMMONIUM HYDROXIDE SOLUTION, 1 N (CAS Mixture)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Cat	42.8736 mg/l, 1 Hours, estimated
	Mouse	408.3333 mg/l, 10 Minutes, estimated
		193.1035 mg/l, 1 Hours, estimated
		190.2299 mg/l, 2 Hours, estimated
	Rabbit	405.1724 mg/l, 1 Hours, estimated
	Rat	436.7816 mg/l, 2 Hours, estimated
		293.1035 mg/l, 1 Hours, estimated
	Cat	281.6092 mg/l, 1 Hours, estimated
	Rabbit	281.6092 mg/l, 1 Hours, estimated
	Rat	80.4598 mg/l, 1 Hours, estimated
LCL0	Cat	281.6092 mg/l, 1 Hours, estimated
	Rabbit	281.6092 mg/l, 1 Hours, estimated
	Rat	80.4598 mg/l, 1 Hours, estimated
<i>Oral</i>		
LD50	Rat	20114.9434 mg/kg, estimated

Components	Species	Test Results
AMMONIA (CAS 7664-41-7)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Cat	7.05 mg/l, 1 Hours
		0.746 mg/l, 1 Hours
	Mouse	7.105 mg/l, 10 Minutes
		3.36 mg/l, 1 Hours
		3.31 mg/l, 2 Hours
	Rabbit	7.05 mg/l, 1 Hours
	Rat	4000 ppm, 1 Hours
		7.6 mg/l, 2 Hours
		5.1 mg/l, 1 Hours
	LCL0	Cat
Rabbit		4.9 mg/l, 1 Hours
Rat		1.4 mg/l, 1 Hours
<i>Oral</i>		
LD50	Rat	350 mg/kg

\* Estimates for product may be based on additional component data not shown.

<b>Skin corrosion/irritation</b>	Causes skin irritation.
<b>Serious eye damage/eye irritation</b>	Causes serious eye irritation.
<b>Respiratory sensitization</b>	Due to lack of data the classification is not possible.
<b>Skin sensitization</b>	Due to lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Due to lack of data the classification is not possible.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Reproductive toxicity</b>	Due to lack of data the classification is not possible.
<b>Specific target organ toxicity - single exposure</b>	Respiratory tract irritation.
<b>Specific target organ toxicity - repeated exposure</b>	Due to lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to lack of data the classification is not possible.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.

## 12. Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects. Components of this product are hazardous to aquatic life. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
AMMONIUM HYDROXIDE SOLUTION, 1 N (CAS Mixture)		
Fish	LC50	Fish 1318.1698 mg/l, 96 hours, estimated
Components	Species	Test Results
AMMONIA (CAS 7664-41-7)		
<b>Aquatic</b>		
Fish	LC50	Silver carp ( <i>Hypophthalmichthys molitrix</i> ) 0.38 mg/l, 96 hours

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** Not available.

**Mobility in soil** Not available.

**Other adverse effects** Not available.

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dilute with water, neutralize with HCl, discharge to sewer with lots of water. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Not available.

**Hazardous waste code** Not regulated.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

Not regulated as a hazardous material by DOT.

### IATA

Not regulated as a dangerous good.

### IMDG

Not regulated as a dangerous good.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** No information available.

## 15. Regulatory information

**US federal regulations** All components are on the U.S. EPA TSCA Inventory List.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

### CERCLA Hazardous Substance List (40 CFR 302.4)

AMMONIA (CAS 7664-41-7) LISTED

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - Yes  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance** No

**SARA 311/312** No  
**Hazardous chemical**

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

AMMONIA (CAS 7664-41-7)

**Safe Drinking Water Act (SDWA)** Not regulated.

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

Not listed.

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

Not regulated.

**DEA Exempt Chemical Mixtures Code Number**

Not regulated.

**Food and Drug Administration (FDA)** Not regulated.

**US state regulations**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**US. Massachusetts RTK - Substance List**

AMMONIA (CAS 7664-41-7)

**US. New Jersey Worker and Community Right-to-Know Act**

AMMONIA (CAS 7664-41-7) 500 LBS

**US. Pennsylvania RTK - Hazardous Substances**

AMMONIA (CAS 7664-41-7)

**US. Rhode Island RTK**

AMMONIA (CAS 7664-41-7)

**US. California Proposition 65**

**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**International Inventories**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

**16. Other information, including date of preparation or last revision**

**Issue date** June-30-2014

**Version #** 01

**Further information** Not available.

**Disclaimer** The information in the sheet was written based on the best knowledge and experience currently available. 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.

**Revision Information**

Product and Company Identification: Product and Company Identification  
Composition / Information on Ingredients: Ingredients  
Physical & Chemical Properties: Multiple Properties