



OCI Company Ltd.

Material Safety Data Sheet

# MSDS

## Standard Solution 6N Ammonia Hydroxide

### Section 1 - Chemical Product and Company Identification

TRADE NAMES : 6N Ammonia Hydroxide

Recommended use : Not available

Restriction of use : Not available

Company Identification

Company : OCI Company Ltd.

Address : 94, Sogong-ro, Jung-gu, Seoul, KOREA

Tel No. : 82 - 2 - 727 - 9494

### Section 2 - Hazards Identification

- 1) Hazard Classification
- Skin corrosion/irritation : 1
  - Serious eye damage / Eye irritation : 1
  - Specific target organ toxicity following single exposure : 2
  - Specific target organ toxicity following repeated exposure : 2
  - Long-term hazard to the aquatic environment : 2

2) Warning signal

Symbol



Signal word

Danger

Hazard statement

- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H371 May cause damage to organs
- H373 May cause damage to organs through prolonged or repeated exposure
- H410 Very toxic to aquatic life with long lasting effects

Prevention precautionary statements

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- 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 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.

P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

P310 Immediately call a POISON CENTER or doctor/physician.

P314 Get medical advice/attention if you feel unwell.

P321 Specific treatment

P363 Wash contaminated clothing before reuse.

P391 Collect spillage.

P405 Store locked up.

P501 Dispose of contents/container to the related laws.

3) NFPA

Health Rating	3
Flammability Rating	0
Reactivity Rating	0

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### Section 3 - Composition, Information on Ingredients

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COMPONENT: Ammonia Water

CAS No.: 1336-21-6

PERCENTAGE: 10 – 15 %

COMPONENT: Water

CAS No.: 7732-18-5

PERCENTAGE: 85 - 90 %

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### Section 4 - First Aid Measures

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**General information:**Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand.

**Ingestion:**Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

**Inhalation:**Move to fresh air. Call a physician or poison control center immediately. Apply artificial respiration if victim is not breathing. If breathing is difficult, give oxygen.

**Skin contact:**Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

**Eye contact:**Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.

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

**Symptoms:**Corrosive to skin and eyes.

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

**Treatment:**Treat symptomatically. Symptoms may be delayed.

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## Section 5 - Fire Fighting Measures

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**General fire hazards:**In case of fire and/or explosion do not breathe fumes.

**Suitable (and unsuitable) extinguishing media**

**Suitable extinguishing media:**Water spray, fog, CO<sub>2</sub>, dry chemical, or regular foam.

**Unsuitable extinguishing media:**None known.

**Specific hazards arising from the chemical:**Fire may produce irritating, corrosive and/or toxic gases.

**Special protective equipment and precautions for firefighters**

**Special fire fighting procedures:**Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for fire-fighters:**Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

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## Section 6 - Accidental Release Measures

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**Personal precautions, protective equipment and emergency procedures:**Keep unauthorized personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the MSDS for Personal Protective Equipment.

**Methods and material for containment and cleaning up:**Neutralize with lime or soda ash. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures:**Inform authorities if large amounts are involved.

**Environmental precautions:**Prevent further leakage or spillage if safe to do so. Do not contaminate water sources or sewer. Avoid discharge into drains, water courses or onto the ground.

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## Section 7 - Handling and Storage

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**Precautions for safe handling:**Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

**Conditions for safe storage, including any incompatibilities:**Keep container tightly closed. Store in a well-ventilated place. Do not store in metal containers.

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## Section 8 - Exposure Controls, Personal Protection

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**Control parameters**

**Occupational exposure limits**

Chemical identity	Type	Exposure Limit values	Source
AMMONIUM HYDROXIDE	STEL	35 ppm	US. ACGIH Threshold Limit Values (2011)
		TWA 25 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	35 ppm 27 mg/m <sup>3</sup>	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
		REL 25 ppm 18 mg/m <sup>3</sup>	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	50 ppm 35 mg/m <sup>3</sup>	US. OSHA Table Z-1 Limits for Air

STEL 35 ppm 27 mg/m<sup>3</sup>

Contaminants (29 CFR 1910.1000) (02 2006)  
US. OSHA Table Z-1-A (29 CFR 1910.1000)  
(1989)

**Appropriate engineering controls**No data available.

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

**General information:**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. An eye wash and safety shower must be available in the immediate work area.

**Eye/face protection:**Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

**Hand protection:**Chemical resistant gloves

**Other:**Wear suitable protective clothing.

**Respiratory protection:**In case of inadequate ventilation use suitable respirator.

**Hygiene measures:**Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

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**Section 9 - Physical and Chemical Properties**

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Appearance

Physical state:Liquid

Form:Liquid

Color:Colorless

Odor:Odorless

Odor threshold:34 ppm.

pH:11.6 (1.0N solution)

Melting point/freezing point:-57.5 °C

Initial boiling point and boiling range:36 °C

Flash Point:Not applicable

Evaporation rate:No data available.

Flammability (solid, gas):No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%):No data available.

Flammability limit - lower (%):No data available.

Explosive limit - upper (%):No data available.

Explosive limit - lower (%):No data available.

Vapor pressure: No data available

Vapor density:No data available.

Relative density:0.90 (20 °C)

Solubility(ies)

Solubility in water:Soluble

Solubility (other):No data available.

Partition coefficient (n-octanol/water):No data available.

Auto-ignition temperature:No data available.

Decomposition temperature:No data available.

Viscosity:No data available.

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## Section 10 - Stability and Reactivity

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**Reactivity:**No dangerous reaction known under conditions of normal use.

**Chemical stability:**Material is stable under normal conditions.

**Possibility of hazardous reactions:**Hazardous polymerization does not occur.

**Conditions to avoid:**Excessive heat.

**Incompatible materials:**Strong oxidizing agents. Acids. Metals. Halogens. Water. Nitromethane.

**Hazardous decomposition products:**Nitrogen Oxides ammonia

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## Section 11 - Toxicological Information

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### Information on likely routes of exposure

**Ingestion:**Harmful if swallowed. May cause burns of the gastrointestinal tract if swallowed.

**Inhalation:**Severely irritating to respiratory system.

**Skin contact:**Causes severe skin burns.

**Eye contact:**Causes serious eye damage.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

**Oral Product:**LD 50 (Rat): 350 mg/kg

**Dermal Product:**No data available.

**Inhalation Product:**No data available.

**Repeated dose toxicity Product:**No data available.

**Skin corrosion/irritation Product:**Causes severe skin burns.

**Serious eye damage/eye irritation Product:**Causes serious eye damage.

**Respiratory or skin sensitization Product:**Not a skin sensitizer.

**Carcinogenicity Product:**This substance has no evidence of carcinogenic properties.

**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**No carcinogenic components identified

### Germ cell mutagenicity

**In vitro Product:**No mutagenic components identified

**In vivo Product:**No mutagenic components identified

**Reproductive toxicity Product:**No components toxic to reproduction

**Specific target organ toxicity - single exposure Product:**Respiratory tract irritation.

**Specific target organ toxicity - repeated exposure Product:**None known.

**Aspiration hazard Product:**Not classified

**Other effects:**None known.

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## Section 12 - Ecological Information

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**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish Product:**LC 50 (Western mosquitofish (*Gambusia affinis*), 96 h): 15 mg/l

**Aquatic invertebrates Product:**LC 50 (Water flea (*Daphnia magna*), 48 h): 0.66 mg/l

**Chronic hazards to the aquatic environment:**

**Fish Product:**No data available.

**Aquatic invertebrates Product:**No data available.

**Toxicity to Aquatic Plants Product:**No data available.

**Persistence and degradability**

**Biodegradation Product:**Expected to be readily biodegradable.

**BOD/COD ratio Product:**No data available.

**Bioaccumulative potential**

**Bioconcentration factor (BCF) Product:**No data available on bioaccumulation.

**Partition coefficient n-octanol / water (log Kow) Product:**No data available.

**Mobility in soil:**The product is water soluble and may spread in water systems.

**Other adverse effects:**Very toxic to aquatic life.

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**Section 13 - Disposal Considerations**

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**Disposal instructions:**Discharge, treatment, or disposal may be subject to national, state, or local laws.

**Contaminated packaging:**Since emptied containers retain product residue, follow label warnings even after container is emptied.

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**Section 14 - Transport Information**

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**DOT**

UN number:UN 2672

UN proper shipping name:Ammonia solutions

Transport hazard class(es)

Class(es):8

Label(s):8

Packing group:III

Marine Pollutant:No

**IMDG**

UN number:UN 2672

UN proper shipping name:AMMONIA SOLUTION

Transport hazard class(es)

Class(es):8

Label(s):8

EmS No.:F-A, S-B

Packing group:III

Marine Pollutant:No

**IATA**

UN number:UN 2672

Proper Shipping Name:Ammonia solution

Transport hazard class(es):

Class(es):8

Label(s):8  
Marine Pollutant:No  
Packing group:III

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**Section 15 - Regulatory Information**

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**US federal regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

AMMONIUM HYDROXIDE Reportable quantity: 1000 lbs.

**Superfund amendments and reauthorization act of 1986 (SARA)****Hazard categories**

X Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

**SARA 302 Extremely hazardous substance**

Chemical identity RQ Threshold Planning Quantity

AMMONIUM HYDROXIDE

**SARA 304 Emergency release notification**

Chemical identity RQ

AMMONIUM HYDROXIDE 1000 lbs.

**SARA 311/312 Hazardous chemical**

Chemical identity Threshold Planning Quantity

AMMONIUM HYDROXIDE

AMMONIUM HYDROXIDE

500 lbs

**SARA 313 (TRI reporting)**

Chemical identity Reporting threshold for other users Reporting threshold for manufacturing and processing  
AMMONIUM HYDROXIDE 10000 lbs 25000 lbs.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**AMMONIUM HYDROXIDE Reportable quantity: 1000 lbs.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**None present or none present in regulated quantities.

**US state regulations**

**US. California Proposition 65**No ingredient regulated by CA Prop 65 present.

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

WATER Listed

AMMONIUM HYDROXIDE Listed

**US. Massachusetts RTK - Substance List**

AMMONIUM HYDROXIDE Listed

**US. Pennsylvania RTK - Hazardous Substances**

WATER Listed

AMMONIUM HYDROXIDE Listed

**US. Rhode Island RTK**

AMMONIUM HYDROXIDE Listed

**Inventory Status:**

Australia AICS:On or in compliance with the inventory  
Canada DSL Inventory List:On or in compliance with the inventory  
EINECS, ELINCS or NLP:On or in compliance with the inventory  
Japan (ENCS) List:On or in compliance with the inventory  
China Inv. Existing Chemical Substances:Not in compliance with the inventory.  
Korea Existing Chemicals Inv. (KECI):On or in compliance with the inventory  
Canada NDSL Inventory:Not in compliance with the inventory.  
Philippines PICCS:On or in compliance with the inventory  
US TSCA Inventory:On or in compliance with the inventory  
New Zealand Inventory of Chemicals:On or in compliance with the inventory  
Japan ISHL Listing:Not in compliance with the inventory.  
Japan Pharmacopoeia Listing:Not in compliance with the inventory.

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## **Section 16 - Other Information**

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Sources : KOSHA, National Emergency Management Agency

Issue date : 09/18/2014

Last updated date : 08/01/2017

Revision number : 1