Safety Data Sheet
AMMONIUM HYDROXIDE, CONCENTRATED

Section 1 - Chemical Product and Company Identification

SDS Name: Ammonium Hydroxide, Concentrated
Catalog Numbers: SO-287, E-310-4, F-390-3, F-392-1B, F-393-1C, F-394-1B, F-395-1C, G-484-1B, K-691-4, K-659-1B
Company Identification: Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923
For information, call: 978-739-4883
Emergency Number: 800-424-9300
For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications

H290-Corrosive to metals: 1
H302-Acute toxicity, oral: 4
H314-Skin corrosion/irritation: 1B
H318-Serious eye damage/eye irritation: 1
H335-Specific target organ toxicity, single exposure; Respiratory tract irritation: 3
H401-Hazardous to the aquatic environment, acute toxicity: 2
H412-Hazardous to the aquatic environment, chronic toxicity: 3

28-30% of the mixture consists of ingredients of unknown acute dermal and inhalation toxicity.

Pictograms or Hazard symbols and Hazard statement(s):

Signal Word: Danger

Hazard Statements:

H290-May be corrosive to metals
H302-Harmful if swallowed
H314-Causes severe skin burns and eye damage

H318-Causes serious eye damage
H335-May cause respiratory irritation

H401-Toxic to aquatic life
H412-Harmful to aquatic life with long lasting effects

Precautionary Statements:

P234-Keep only in original packaging.
P260-Do not breathe dusts or mists.
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.
P264-Wash thoroughly after handling.
P270-Do not eat, drink, or smoke when using this product.
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+P312-If swallowed: Call a Poison Center or doctor/physician if you feel unwell.
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 person to fresh air and keep 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.
P310-Immediately call a Poison Center or doctor/physician.
P312-Call a Poison Center or doctor/physician if you feel unwell.
P330-Rinse mouth.
P363-Wash contaminated clothing before reuse.
P390-Absorb spillage to prevent material damage.
P403+P233-Store in a well-ventilated place. Keep container tightly closed.
P405-Store locked up.
P406-Store in corrosive resistant/container with a resistant inner liner.
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
1336-21-6	Ammonium Hydroxide	28-30 v/v
7732-18-5	Water	balance

Section 4 - First Aid Measures

Eye Exposure: IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURES. In case of contact with eyes, immediately flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Remove contact lenses, if present. Seek immediate medical advice.

Dermal Exposure: In case of skin contact, immediately flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Seek immediate medical attention.

Oral Exposure: If swallowed, seek immediate medical advice. Drink water. Do NOT induce vomiting.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing becomes difficult, give oxygen, and immediately call a physician.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam.

Hazardous Combustion Products: Nitrogen oxides, ammonia, irritating and toxic fumes and gases.

Flash Point: Not available
Autoignition Temperature: Not available
Explosion Limits, Lower: Not available
Upper: Not available
NFPA Rating: (estimated) Health: 3; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s):
Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation.

Methods for Cleaning up: Contain and recover liquid when possible. Residue from spills may be diluted with water and neutralized. Absorb neutralized residue with sand, earth, or vermiculite. Carefully sweep up and containerize for proper disposal. Do not release to the environment. Do not release into drains.

Section 7 - Handling and Storage

Use care when handling. Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or clothing. Do not ingest. Do not breathe vapors or mist. Wash thoroughly after handling. Store in a tightly closed non-metal container in a dry, cool, and well-ventilated area. Protect from direct sunlight. Corrosive material. Keep away from incompatible materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Exposure Limits:

Chemical Name	ACGIH - TLV	NIOSH - IDLH	OSHA - Final PELs
Ammonium Hydroxide CAS#1336-21-6	25 ppm TWA 35 ppm STEL	25 ppm TWA 18 mg/m3 TWA 35 ppm STEL 27 mg/m3 STEL	For ammonia: 50 ppm TWA; 35 mg/m3 TWA (35 ppm STEL vacated, 27 mg/m3 STEL vacated)

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Colorless

Odor: Ammonia-like

Vapor Pressure: 580 mm Hg at 20°C for a 28% solution

Odor threshold: not available

Vapor Density: 0.60 NH3 (Air=1)

pH: 13.8 (29% solution)

Relative density: 0.9 g/mL at 25°C

Melting point/freezing point: -72°C (-98°F)

Solubility: soluble in water

Boiling Point: approximately 36°C (97°F)

Flash point: not available

Evaporation Rate: not available

Flammability (solid, gas): not applicable

Flammability or explosive limits:

Upper: not available

Lower: not available

Partition coefficient: n-octanol/water: not available

Auto-ignition temperature: not available

Decomposition temperature: not available

Viscosity: not available

Section 10 - Stability and Reactivity

Chemical Stability: Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.
Conditions to Avoid: Incompatible materials, excess heat, and ignition sources. Avoid direct sunlight.
Incompatibilities with Other Materials: Strong oxidizing agents, acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, oleum, beta-propiolactone, metals, aluminum, lead, nickel, silver, zinc, copper, metal alloys, and fluorine.
Hazardous Decomposition Products: Nitrogen oxides, ammonia, irritating and toxic fumes and gases.

Section 11 - Toxicological Information

CAS#1336-21-6 Ammonium Hydroxide:
LD50 Oral: >350 mg/kg (rat)
LD50 Dermal: Not available
LC50 Inhalation: Not available

Carcinogenicity: Ammonium Hydroxide CAS#1336-21-6 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop 65.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation, and eye.

Epidemiology: Not available.
Teratogenicity: Not available.
Reproductive Effects: Not available.
Developmental Effects: Not available.
Neurotoxicity: Not available.
Mutagenicity: Not available.
Specific Target Organ Toxicity, Single Exposure: Respiratory system.
Specific Target Organ Toxicity, Repeated Exposure: Not available.

Symptoms associated with exposure: Corrosive material. Causes severe skin burns and eye damage. May cause respiratory irritation. Ingestion may cause gastric pain, swelling, bloody vomiting, coughing, severe burns of mouth/throat, perforation of esophagus/stomach. Inhalation may cause mucosal irritations, cough, shortness of breath, bronchitis, respiratory tract damage. Eye contact may cause severe pain, eye damage, and risk of blindness. Skin contact may cause irritations and burns.

The toxicological properties of this material have not been thoroughly investigated.

Section 12 - Ecological Information

Ecotoxicity: Do not release to the environment. Do not release to drains. Toxic to aquatic life. May cause long-term adverse effects to the environment.

CAS#1336-21-6 Ammonium Hydroxide:
LC50, freshwater fish: 0.53 mg/L 96h
LC50, freshwater fish: 8.2 mg/L 96h (fathead minnow)
LC50, freshwater fish: 0.75-3.4mg/L 96h
EC50, water flea: 0.66 mg/L 48h

Persistence and degradability: Not available
Bio-accumulative potential: Not available
Mobility: Will likely be mobile in the environment due to its water solubility.

Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 – Transport Information

DOT
Proper shipping name: Ammonia Solution
UN2672
PG III
Hazard Class 8

Section 15 - Regulatory Information

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

Section 16 - Additional Information

SDS Creation Date: 10/15/12
Revision #1. YM 3/24/2014
Revision #2. 7-25-19
Revision #3. 11-14-22

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