

Ammonium hydroxide solution**09861-1L**

Version 1.2

Revision Date 07/11/2023

Print Date 07/12/2023

SECTION 1. IDENTIFICATION

Product name : Ammonium hydroxide solution

Number : 000000020199

Product Use Description : Laboratory chemicals

Manufacturer or supplier's details : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442

For more information call : 1-800-368-0050
+1-231-726-3171(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or**
: **+1-703-527-3887**
:
: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : liquid

Color : colourless

Odor : stinging ammoniacal

Classification of the substance or mixture

Classification of the substance or mixture : Skin corrosion, Category 1B
Serious eye damage, Category 1
Specific target organ toxicity - single exposure, Category 3,
Respiratory system

GHS Label elements, including precautionary statements

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Symbol(s)

:



Signal word

: Danger

Hazard statements

: Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary statements

: **Prevention:**

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash 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): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position 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 in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Water	7732-18-5	>=70.00 - <80.00 %
Ammonium hydroxide	1336-21-6	>=20.00 - <30.00 %

SECTION 4. FIRST AID MEASURES

- General advice : First aider needs to protect himself. Immediately take off contaminated clothing and rinse body with plenty of water.
- Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician immediately.
- Skin contact : Wash off immediately with soap and plenty of water. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.
- Ingestion : A person suspected to have swallowed the substance who is conscious should be given water to drink. Take to a doctor immediately together with this card

Notes to physician

- Most important symptoms/effects, acute and delayed : No information available.
- Indication of immediate medical attention and : Treat symptomatically.

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special treatment needed, if
necessary

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder
- Specific hazards during firefighting : Ammonia gas may be liberated at high temperatures.
Vapours may form explosive mixtures with air.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.
No unprotected exposed skin areas.
- Further information : Use extinguishing measures that are appropriate to local
circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Use personal protective equipment.
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
- Methods and materials for containment and cleaning up : Ventilate the area.
Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13).

SECTION 7. HANDLING AND STORAGE**Handling**

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Precautions for safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Do not smoke.
Do not swallow.
Do not breathe vapours or spray mist.
Do not get in eyes, on skin, or on clothing.

Advice on protection against fire and explosion : Keep away from heat and sources of ignition.
Ammonia gas may be liberated at high temperatures.
Vapours may form explosive mixture with air.
The product itself does not burn.

Storage

Conditions for safe storage, including any incompatibilities : Keep containers tightly closed in a dry, cool and well-ventilated place.
Store in original container.
Keep away from heat and sources of ignition.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.
Do not breathe vapours or spray mist.

Engineering measures : Use with local exhaust ventilation.

Eye protection : Safety goggles

Hand protection : Impervious gloves
Gloves must be inspected prior to use.
Replace when worn.

Skin and body protection : Protective suit

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Hygiene measures : Keep working clothes separately.
Separate rooms are required for washing, showering and

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changing clothes.
Take off all contaminated clothing immediately.
Wash hands before breaks and at the end of workday.
When using do not eat or drink.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Ammonium hydroxide	1336-21-6	REL : Recommended exposure limit (REL):	18 mg/m3 (25 ppm)	2019	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Ammonium hydroxide	1336-21-6	PEL : Permissible exposure limit	35 mg/m3 (50 ppm)	01 2017	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Ammonium hydroxide	1336-21-6	STEL : Short term exposure limit	27 mg/m3 (35 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Ammonium hydroxide	1336-21-6	STEL : Short term exposure limit	(35 ppm)	01 2021	ACGIH:US. ACGIH Threshold Limit Values, as amended
Ammonium hydroxide	1336-21-6	STEL : Short term exposure limit	27 mg/m3 (35 ppm)	2019	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended

SAFETY DATA SHEET

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Ammonium hydroxide	1336-21-6	TWA : Time weighted average	(25 ppm)	01 2021	ACGIH:US. ACGIH Threshold Limit Values, as amended
Ammonium hydroxide	1336-21-6	STEL : Short term exposure limit	27 mg/m3 (35 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Ammonium hydroxide	1336-21-6	PEL : Permissible exposure limit	35 mg/m3 (50 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Color	: colourless
Odor	: stinging ammoniacal
Odor threshold	: Note: No data available
pH	: Note: alkaline, (undiluted)
Melting point/range	: -92 °C
Boiling point/boiling range	: 37.7 °C at 1,013 hPa
Flash point	: Note: Not applicable
Evaporation rate	: Note: No data available

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Flammability	: Not applicable
Lower explosion limit	: 15 %(V)
Upper explosion limit	: 30.2 %(V)
Vapor pressure	: 1,900 hPa at 50 °C(122 °F) 837 hPa at 20 °C(68 °F)
Vapor density	: Note: No data available
Density	: ca. 0.90 g/cm ³ at 20 °C
Water solubility	: Note: completely miscible
Partition coefficient: n-octanol/water	: log Pow: -0.64
Ignition temperature	: 630 °C
Auto-ignition temperature	: 651 °C
Decomposition temperature	: Note: No decomposition if used as directed.
Viscosity, dynamic	: Note: No data available
Viscosity, kinematic	: 1.3 mm ² /s
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Bulk density	: Note: Not applicable

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SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Protect from heat/overheating.
Incompatible materials	: Acids Halogens
Hazardous decomposition products	: Ammonia gas may be liberated at high temperatures.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: Note: Toxicity is determined by the corrosivity of the product.
Acute inhalation toxicity	: Note: Toxicity is determined by the corrosivity of the product.
Acute dermal toxicity	: Note: Toxicity is determined by the corrosivity of the product.
Skin irritation	: Species: Rabbit Result: Causes burns. Classification: Corrosive Method: OECD Test Guideline 404
Eye irritation	: Species: Rabbit Result: Risk of serious damage to eyes. Classification: Corrosive
Sensitisation	: Species: Guinea pig

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Classification: non-sensitizing

Repeated dose toxicity	: Species: Rat Application Route: Inhalation Exposure time: 50 d NOAEL: 0.035 mg/kg
Genotoxicity in vitro	: Test Method: Ames test Result: negative Method: OECD Test Guideline 471
Genotoxicity in vivo	: Test Method: Micronucleus test Species: Mouse Method: OECD Test Guideline 474 Test substance: REACH dossier "read-across" Result: negative
Reproductive toxicity	: Species: Rat Application Route: Oral NOAEL: 408 mg/kg bw/d Method: OECD Test Guideline 422
Teratogenicity	: Species: Rabbit Application Route: Oral Note: Did not show teratogenic effects in animal experiments.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish	: LC50: 0.89 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates	: LC50: 101 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

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Toxicity to algae : static test
EC50: 2,700 mg/l
Exposure time: 18 d
Species: Chlorella vulgaris (Fresh water algae)

Elimination information (persistence and degradability)

Bioaccumulation : Note: Bioaccumulation is unlikely.

Mobility : Note: No data available

Biodegradability : Note: Not applicable

Further information on ecology**Ecotoxicology Assessment**

Results of PBT assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Additional ecological information : Do not flush into surface water or sanitary sewer system.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT	UN/ID No.	: UN 2672
	Proper shipping name	: AMMONIA SOLUTION
	Class	8
	Packing group	III
	Hazard Labels	8

IATA	UN/ID No.	: UN 2672
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Description of the goods : AMMONIA SOLUTION
Class : 8
Packaging group : III
Hazard Labels : 8
Packing instruction (cargo aircraft) : 856
Packing instruction (passenger aircraft) : 852
Packing instruction (passenger aircraft) : Y841

IMDG UN/ID No. : UN 2672
Description of the goods : AMMONIA SOLUTION
Class : 8
Packaging group : III
Hazard Labels : 8
EmS Number : F-A, S-B
Marine pollutant : yes
IMDG Code segregation group (SGG18) – ALKALIS,

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances Control Act : On TSCA Inventory

Australia. Inventory of Industrial Chemicals (AIIC), as amended : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

Philippines. Inventory of Chemicals and Chemical Substances (PICCS) : On the inventory, or in compliance with the inventory

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China. Inventory of Existing Chemical Substances (IECSC) : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

Taiwan Chemical Substance Inventory (TCSI) : On the inventory, or in compliance with the inventory

National regulatory information

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

Reportable quantity: 1000 lbs
: Ammonium hydroxide 1336-21-6

SARA 302 Components : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
: Ammonium hydroxide 1336-21-6

SARA 311/312 Hazards : Acute Health Hazard

CERCLA Reportable Quantity : 4000 lbs

California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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Massachusetts RTK	: Ammonium hydroxide	1336-21-6
New Jersey RTK	: Ammonium hydroxide	1336-21-6
Pennsylvania RTK	: Ammonium hydroxide	1336-21-6

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 3*	3
Flammability	: 1	1
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group