

Ammonium hydroxide solution

338818-1L

Version 1.4

Issuing date 12/08/2016

Revision Date 07/11/2023

Print Date 07/12/2023

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product information**

Trade name : Ammonium hydroxide solution

Number : 000000015205

Recommended use of the chemical and restrictions on use : Laboratory chemicals

Manufacturer or supplier's details : Honeywell Specialty Chemicals Seelze GmbH
Wunstorfer Straße 40
Seelze, 30926
Germany

For further information, please contact: : 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**
In Japan: +(81)-345209637

2. HAZARDS IDENTIFICATION**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
Short-term (acute) aquatic hazard, Category 1

GHS Label elements, including precautionary statements

Symbol(s) :



Signal word : Danger

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Hazard statements : Causes severe skin burns and eye damage.
May cause respiratory irritation.
Very toxic to aquatic life.

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.
Avoid release to the environment.
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.
Collect spillage.

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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : H5NO

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Water	7732-18-5	>=70.00 - <90.00 %
Water		
Ammonium hydroxide	1336-21-6	>=25.00 - <50.00 %

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Note: Substances Subject to be Notified Names

Note: Deleterious Substances - Cabinet Order

Note: Corrosive liquid Article 326

4. FIRST AID MEASURES

- General advice : First aider needs to protect himself.
Move out of dangerous area.
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.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Protect unharmed eye.
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 : Inhaled corrosive substances can lead to a toxic oedema of the lungs.
Treat symptomatically.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Foam
Carbon dioxide (CO₂)
Dry powder

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- 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.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear personal protective equipment. Immediately evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Remove all sources of ignition. Do not breathe vapours or spray mist. Do not get in eyes, on skin, or on clothing.
- Environmental precautions : Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided. Do not flush into surface water or sanitary sewer system. Do not allow run-off from fire fighting to enter drains or water courses.
- 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).

7. HANDLING AND STORAGE**Handling**

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

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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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
Ammonium hydroxide Ammonium hydroxide	1336-21-6	TWA : Time weighted average	17 mg/m ³ (25 ppm)	05 2020	Japan Society for Occupational Health:Japan Society for Occupational Health allowable concentration recommendation value

Appropriate engineering controls

Use with local exhaust ventilation.

Individual protection measures, such as personal protective equipment

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

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

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Eye protection	: Face-shield Safety goggles
Skin and body protection	: Protective suit
Hygiene measures	: Keep working clothes separately. Separate rooms are required for washing, showering and 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.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Colour	: colourless
Odour	: ammoniacal
Odour Threshold	: Note: No data available
pH	: Note: alkaline, (undiluted)
Melting point/range	: -92 °C
Initial boiling point and boiling range	: ca. 32 °C at 1,013 hPa
Flash point	: Note: Not applicable
Evaporation rate	: Note: No data available
Flammability	: Not applicable
Lower explosion limit	: 15 %(V)

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Upper explosion limit	: 30.2 %(V)
Vapour pressure	: 1,900 hPa at 50 °C(122 °F) 837 hPa at 20 °C(68 °F)
Vapour density	: Note: No data available
Density	: ca. 0.89 g/cm ³ at 20 °C
Water solubility	: Note: completely miscible
Partition coefficient: n-octanol/water	: Note: No data available
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	: Note: No data available
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Molecular weight	: 35.05 g/mol
Bulk density	: Note: Not applicable

10. STABILITY AND REACTIVITY

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.

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Conditions to avoid : Keep away from heat and sources of ignition.

Incompatible materials to avoid : Acids
Halogenes

Hazardous decomposition products : Ammonia gas may be liberated at high temperatures.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact, Ingestion

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 corrosion/irritation : Species: Rabbit
Result: Causes burns.
Method: OECD Test Guideline 404

Serious eye damage/eye irritation : Species: Rabbit
Result: Risk of serious damage to eyes.

Skin sensitisation : Species: Guinea pig
Classification: non-sensitizing

Respiratory sensitisation : Note: No data available

Repeated dose toxicity : Species: Rat
Application Route: Inhalation
Exposure time: 50 d
NOAEL: 0.035 mg/l

Germ cell mutagenicity : Test Method: Ames test
Result: negative
Method: OECD Test Guideline 471

Germ cell mutagenicity : Test Method: Micronucleus test
Species: Mouse
Method: OECD Test Guideline 474

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	Test substance: REACH dossier "read-across" Result: negative
Carcinogenicity	: Note: Not classified due to data which are conclusive although insufficient for classification.
Reproductive toxicity	: Species: Rat Application Route: Oral NOAEL: 408 mg/kg bw/d Method: OECD Test Guideline 422
Reproductive toxicity	: Species: Rabbit Application Route: Oral Note: Did not show teratogenic effects in animal experiments.
Specific target organ toxicity - single exposure	: Assessment :The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
Specific target organ toxicity - repeated exposure	: Note :Not classified due to data which are conclusive although insufficient for classification.
Further information	: Note: The data on toxicology refer to the active ingredient.

12. ECOLOGICAL INFORMATION**Aquatic and ecotoxicity**

Toxicity to fish	: LC50: 0.89 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
	: Lowest Observed Effect Concentration: 0.022 mg/l Exposure time: 73 d Species: Oncorhynchus mykiss (rainbow trout) Test substance: REACH dossier "read-across"
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)

Persistence and degradability

Biodegradability : Note: Not applicable

Bioaccumulative potential

Bioaccumulation : Note: Bioaccumulation is unlikely.

Mobility in soil

Mobility : Note: No data available

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).

13. DISPOSAL CONSIDERATIONS

Disposal methods : In accordance with local and national regulations.

14. TRANSPORT INFORMATION**ADR**

UN/ID No. : UN 2672
Description of the goods : AMMONIA SOLUTION

Class : 8
Packing group : III
Classification Code : C5
Hazard Identification Number : 80
Labels : 8

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IATA

UN/ID No. : UN 2672
 Description of the goods : Ammonia solution
 Class : 8
 Packing group : III
 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
 Packing group : III
 Labels : 8
 EmS Number 1 : F-A
 EmS Number 2 : S-B

 Marine pollutant : yes

15. REGULATORY INFORMATION**National regulatory information**

Vessel Safety Law : Corrosive substances (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)
 JP VSL

Aviation Law : Corrosive substances (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)
 JP AVL

Fire Service Law : Not relevant

Japan. ISHL Hazardous Substances Subject to Labeling Requirements : Not relevant
 Ammonium hydroxide 1336-21-6

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(ISHL Enforcement Order,
Article 18, Art. 30 & 31), as
amended

Japan. SDS and Risk : Not relevant
Assessment Requirements : Ammonium hydroxide 1336-21-6

(ISHL Art. 57-2 and 57-3,
Enforcement Order Art. 18-2,
Enforcement Rule Art. 34-2
and 34-2-2), as amended

Japan. ISHL Class 3 : Not relevant
Designated Chemical : Ammonium hydroxide 1336-21-6

Substances (ISHL
Enforcement Order, Table 3,
as amended)

Japan. ISHL Corrosive Liquid : Not relevant
(Industrial Safety and Health : Ammonium hydroxide 1336-21-6

Ordinance, Art. 326, as
amended through MHLW
Ordinance No. 212)

Poisonous and Deleterious : Deleterious substance not for pharmaceutical use
Substances Control Law : 8

Listed
Ammonium hydroxide 1336-21-6

Other international regulations**Notification status**

US. Toxic Substances : On TSCA Inventory
Control Act

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

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

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

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

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

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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