MATERIAL SAFETY DATA SHEET

AMMONIA WATER 25%

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Version EN: 1.0

Material Safety Data Sheet in accordance with WE 1907/2006 of 18.12.2006 – REACH and 2020/878 of 18.06.2020.

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier — AMMONIA WATER 25%

1.2 Relevant identified uses of the substance or mixture and uses advised against.

Identified applications: Industrial applications as an intermediate product. Professional applications. Consumer Applications.

Advised against applications: Other than above.

1.3 Details of the supplier of the safety data sheet.

Distributor:
TOMCHEM Sp. z o.o.
95-050 Konstantynów Łódzki
ul. Niesięcin 5A
tel. 42 683-11-83
tel/fax.; 42-636-43-18

1.4 Emergency telephone number — 112 (general emergency phone)

SECTION 2. Hazards identification.

2.1 Classification of the substance or mixture:

Classification and labelling have been determined in accordance with Regulation (EC) 1272/2008 (as amended).
Product has been classified as hazardous in accordance with Regulation (EC) 1272/2008.

Skin Corr. 1B; Causes severe skin burns and eye damage.
STOT SE 3; May cause respiratory irritation.
Aquatic Acute 1; Very toxic to aquatic life.
Aquatic Chronic 2; Toxic to aquatic life with long lasting effects.

2.2 Label elements:

Pictogram:

Signal word: Danger

Hazard statements:

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eyeprotection/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 [or 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.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards:

Annex XIII of REACH Regulation – Criteria for identifying persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB) – not applicable.
Substances with endocrine disrupting properties (in accordance with the criteria of Commission Delegated Regulation (EU) 2017/2100, Commission Regulation (EU) 2018/605) – not applicable.

SECTION 3. Composition/information on ingredients

3.1 Substances.

Product identificator	Amount [%]	Hazard class and category codes	Hazard statement codes and supplementary statements	Specific concentration limit, M-factor, Acute toxicity estimate ATE
Ammonia, anhydrous* CAS: 7664-41-7 WE: 231-635-3 Indeks No.: 007-001-00-5 REACH No.: 01-2119488876-14-0000	25	Flam. Gas 2 Press Gas Acute Tox. 3 Skin Corr. 1B Aquatic Acute 1 Aquatic Chronic 2	H221 H280 H331 H314 H400 H411	

Full text of H phrases in section 16.
*substance with a specific OEL value.

SECTION 4. First aid measures.

4.1 Description of first aid measures.

In case of skin contact:

Remove all contaminated clothing, wash skin with plenty of water. Apply a sterile dressing to the burned area. Do not use any neutralizing agents. Contact a physician.

In case of eye contact:

Flush eyes with plenty of water for several minutes (approximately 15), holding eyelids wide open. Avoid strong water jets due to the risk of corneal damage. Contact a doctor immediately.

In case of inhalation:

If dizziness or nausea occurs, remove injured person to fresh air. If no improvement occurs quickly, seek medical advice. If shortness of breath occurs, provide oxygen.

In case of swallowing:

Rinse mouth immediately. Give plenty of water to drink. Do not induce vomiting (risk of perforation), contact a doctor immediately. Do not give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed.

Inhalation: Ammonia water contains ammonia, which evaporates at room temperature. Exposure to ammonia vapors causes a burning sensation in the throat, cough, salivation, nausea, lacrimation, and headache. Ammonia poisoning can result in edema,

irritation, and bronchopneumonia. The life-threatening concentration (after 30 minutes of exposure) is 1530-3150 mg/m³, and the lethal concentration is 3500-7000 mg/m³. Severe exposure can cause apnea with frothy saliva (pulmonary edema), wheezing, chest pain, and circulatory collapse. Bronchitis can be a complication. In severe cases, bronchopneumonia, glottis edema, respiratory paralysis, and circulatory failure can develop, leading to death. Skin contact: causes chemical burns; blisters may form. Eye contact: severe irritation, conjunctival edema. Corneal damage may occur, including clouding and ulceration. There is a risk of vision loss. Ingestion: esophageal burns, digestive and metabolic disturbances.

4.3 Indication of any immediate medical attention and special treatment needed.

Decision about action is made by doctor after assessing injured person's condition.

SECTION 5. Firefighting measures.

5.1 Extinguishing media:

Suitable extinguishing media: Dry chemical, carbon dioxide (carbon dioxide extinguisher), sand, or earth. Use extinguishing methods appropriate to the surrounding conditions.

Inappropriate extinguishing media: Strong stream of water.

5.2 Special hazards arising from the substance or mixture:

Nitrogen oxides are released during combustion.

5.3 Advice for firefighters:

Cool containers in fire area with a water spray and, if possible, remove them from danger zone. In case of a fire in an enclosed space, wear protective clothing and a compressed air breathing apparatus. Do not allow extinguishing water to enter surface water, groundwater or the sewage system.

SECTION 6. Accidental release measures.

6.1 Personal precautions, protective equipment and emergency procedures.

For non-emergency personnel: Notify appropriate authorities of the incident. Remove anyone not involved in incident from the hazard area.
For emergency personnel: Ensure adequate ventilation and use personal protective equipment. Do not inhale released vapors.

6.2 Environmental precautions.

Prevent spreading and entry into sewers and water bodies, inform local authorities if protection cannot be ensured.

6.3 Methods and material for containment and cleaning up.

Prevent spread and remove by collecting on non-flammable absorbent material (sand, sawdust, diatomaceous earth, universal absorbent). Place contaminated material in appropriately labeled containers for disposal in accordance with applicable regulations. Ammonia should be neutralized with an appropriate amount of 10-20% sulfuric acid.

6.4 Reference to other sections.

Product waste disposal – see section 13. Personal protective equipment – see section 8.

SECTION 7. Handling and storage.

7.1 Precautions for safe handling.

Ensure adequate general room ventilation and exhaust ventilation at workstations. Avoid contact with eyes and skin. Work in accordance with health and safety regulations: do not eat, drink, or smoke in the workplace, wash hands after use, and remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities.

Store in a cool, dry, well-ventilated (with emergency mechanical ventilation) area, in properly labeled, tightly closed original container. Avoid direct sunlight, heat sources, hot surfaces, and open flames. Store away from acids.

7.3 Specific end use(s).

Uses as per section 1.2. – no additional recommendations.

SECTION 8. Exposure controls/personal protection.

8.1 Control parameters:

Ensure adequate ventilation.

Maximum allowable concentration values:

Regulation of the Minister of the Family, Labour and Social Policy of 24 June 2024 on the maximum permissible concentrations and intensities of factors harmful to health in the working environment (Journal of Laws item 1017, as amended).

Chemical name and CAS number	NDS [mg/m^3]	NDSCh [mg/m^3]	NDSP [mg/m^3]	Notes: labeling of substances with the notation "skin"
Ammonia, anhydrous [CAS: 7664-41-7]	14	28	-	-

DNEL and PNEC values.

For workers:
inhalation, short-term exposure, local effects: 36mg/m³
inhalation, short-term exposure, systemic effects: 47.6mg/m³
inhalation, long-term exposure, local effects: 14mg/m³
inhalation, long-term exposure, systemic effects: 47.6mg/m³
skin, short-term exposure, systemic effects: 68mg/kg
skin, long-term exposure, systemic effects: 6.8mg/kg
For consumers:
oral, short-term exposure, systemic effects: 6.8mg/kg
oral, long-term exposure, systemic effects: 6.8mg/kg
inhalation, short-term exposure, local effects: 7.2mg/m³
inhalation, short-term exposure, systemic effects Systemic: 23.8mg/m^3
Inhalation, long-term exposure, local effects: 2.8mg/m^3
Inhalation, long-term exposure, systemic effects: 23.8mg/m^3
Skin, short-term exposure, systemic effects: 68mg/kg
Skin, long-term exposure, systemic effects: 68mg/kg
PNEC value:
for freshwater: 0.0011mg/l
for marine water: 0.0011mg/l
for water (intermittent release): 0.0068mg/l

8.2 Exposure controls:

Appropriate engineering controls: general room ventilation and exhaust ventilation are essential. Equip workstations with safety showers and eye washers.

Respiratory protection.

Avoid inhaling product vapors. In case of exposure to ammonia vapors and gases at concentrations up to 0.5%, use a full face mask (EN 136) with an appropriate filter (EN 141). In case of higher concentrations and uncontrolled emissions, use self-contained breathing apparatus.

Hand protection.

Use chemical-resistant protective gloves made of butyl rubber (thickness: 0.7 mm, breakthrough time: >480 min.) compliant with the EN-PN 374:2005 standard.
Glove material:
Choosing right gloves depends not only on the material, but also on the brand and quality, which vary between manufacturers. Resistance of glove's material can be determined after testing. Exact time of glove degradation must be determined by the manufacturer.

Eye protection.

Wear safety glasses or face mask (compliant with EN 166).

Body protection.

Use protective work clothing (compliant with EN 344).

Thermal hazards: Not applicable.
Environmental exposure controls: Do not allow to spread into the environment or enter sewers or watercourses.

SECTION 9. Physical and chemical properties.

9.1 Information on basic physical and chemical properties.

Physical state	liquid
Colour	colourless
Odour	pungent smell
Melting point/freezing point	r-r 10%: 13,5°C r-r 25%: 36,4°C r-r 30%: 84,1°C
Boiling point or initial boiling point and boiling range	no data available
Flammability	product is not flammable
Lower and upper explosion limit	not applicable
Flash point	not applicable
Auto-ignition temperature	not applicable
Decomposition temperature	not applicable
pH	strongly alkaline
Kinematic viscosity	no data available
Solubility	soluble in water
Partition coefficient n-octanol/water (log value)	not applicable
Vapour pressure	r-r 10%: 100mbar r-r 25%: 300mbar r-r 30%: 700mbar
Density and/or relative density	r-r 1%: 0,9939g/cm^3 r-r 12%: 0,9500g/cm^3 r-r 35%: 0,8730g/cm^3
Relative vapour density	no data available

Particle characteristics	not applicable
9.2 Other information:	
Explosives	not applicable
Flammable gases	not applicable
Aerosols	not applicable
Oxidising gases	not applicable
Gases under pressure	not applicable
Flammable liquids	not applicable
Flammable solids	not applicable
Self-reactive substances and mixtures	not applicable
Pyrophoric liquids	not applicable
Self-heating substances and mixtures	not applicable
Substances and mixtures, which emit flammable gases in contact with water	not applicable
Oxidising liquids	not applicable
Oxidizing solids	not applicable
Organic peroxides	not applicable
Corrosive to metals	not applicable
Desensitised explosives	not applicable

SECTION 10. Stability and reactivity.

10.1 Reactivity:

Anhydrous ammonia is chemically active. It poses a risk of explosion. It dissolves very well in water, forming alkaline solutions. Corrosive properties: ammonia, especially in presence of moisture, attacks copper, zinc, tin, and their alloys.

10.2 Chemical stability:

Under normal temperature and pressure conditions, product is stable. At higher temperatures, gaseous ammonia is released.

10.3 Possibility of hazardous reactions:

Released ammonia reacts violently with: acetaldehyde, chlorosilane, ethylene oxide, fluorine, hydrogen bromide, hypochlorous acid, iodine, nitric acid, nitrogen dioxide, nitrogen trichloride, nitrosyl chloride, phosphorus pentoxide, picric acid, phosphorus and phosphine, arsenic hydride, antimony hydride, sodium, sulfur dichloride.

10.4 Conditions to avoid:

Avoid higher temperatures, direct sunlight, hot surfaces, and open flames.

10.5 Incompatible materials:

See section 10.3.

10.6 Hazardous decomposition products:

Nitrogen oxides are released during combustion.

SECTION 11. Toxicological information.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

a)	acute toxicity	Based on available data, the classification criteria are not met.
b)	skin corrosion/irritation	Causes severe skin burns and eye damage.
c)	serious eye damage/irritation	Causes serious eye damage.
d)	respiratory or skin sensitisation	Based on available data, the classification criteria are not met.
e)	germ cell mutagenicity	Based on available data, the classification criteria are not met.
f)	carcinogenicity	Based on available data, the classification criteria are not met.
g)	reproductive toxicity	Based on available data, the classification criteria are not met.
h)	STOT-single exposure	May cause respiratory irritation.
i)	STOT-repeated exposure	Based on available data, the classification criteria are not met.
j)	aspiration hazard.	Based on available data, the classification criteria are not met.

Data for components:
Acute respiratory toxicity study for anhydrous ammonia:
Animals: Rats
Exposure time: 10; 20; 40; 60 minutes (observation period 14 days)
Estimated dose:
LC50 (10 min): 28,130 mg/m^3 (males/females)
LC50 (20 min): 19,960 mg/m^3 (males/females)
LC50 (40 min): 14,170 mg/m^3 (males/females)
LC50 (60 min): 11,590 mg/m^3 (males/females)
LC50 (60 min): 9,850 mg/m^3 (males)
LC50 (60 min): 13,770 mg/m^3 (females)

11.2 Information on other hazards.

Substances with endocrine disrupting properties (in accordance with the criteria of Commission Delegated Regulation (EU) 2017/2100, Commission Regulation (EU) 2018/605) – not specified.

SECTION 12. Ecological information.

12.1 Toxicity:

Product is highly toxic to aquatic organisms, causing long-term effects. Do not allow it to enter groundwater, sewage systems, or watercourses.
Toxicity to fish:
Onchorynchus mykiss EC50 0.89 mg/l, 96 (non-ionic form)
LOEC 0.022 mg/l, 73 days
Toxicity to invertebrates:
Daphnia magna EC50: 10 mg/l, 48 hours
NOEC: 0.79 mg/l, 96 hours (non-ionic form)
Toxicity to algae:
Chlorella vulgaris EC50 7200 mg/l, 18 days (growth inhibition)

12.2 Persistence and degradability:

An aqueous solution of ammonia dissolves well in water and provides a nutrient source for bacteria and macrolites as a source of nitrogen.

12.3 Bioaccumulative potential:

Does not meet criteria.

12.4 Mobility in soil:

Not applicable: mixture reacts violently with minerals contained in the soil. It is also a breeding ground for bacteria in nitrogen cycle.

12.5 Results of PBT and vPvB assessment:

Does not meet criteria for PBT and vPvB.

12.6 Endocrine disrupting properties:

Product does not interfere with the functioning of endocrine system.

12.7 Other adverse effects:

No data available.

SECTION 13. Disposal considerations.

13.1 Waste treatment methods.

Do not allow waste to enter the soil, surface water, or groundwater. Waste should be selectively stored until appropriate amount is collected in a designated storage area, disposed or recovered in your own facilities based on permits you hold or transferred directly to authorized waste collector for disposal or recovery. In case of a spill, taking into account its properties, ammonia should be neutralized with 10-20% sulfuric acid. Collect liquid using sorbents intended for this purpose in sealable packaging/containers. Hazardous waste should be permanently labeled and then transferred directly to an authorized waste collector for disposal or recovery. Waste management process may also generate packaging waste containing residues of hazardous substances or contaminated with them.
15 01 10* Packaging containing residues of hazardous substances or contaminated with them

Law dated 8 January 2013 on waste. (Journal of Laws 2013 item 21 as amended).
Law dated 13 June 2013 on the management of packaging and packaging waste. (Journal of Laws 2013 item 888 as amended).
Regulation of the Minister of Climate of January 02, 2020 on the waste catalog (Journal of Laws 2020 item 10 as amended).

SECTION 14. Transport information.

14.1 UN number or ID number.

UN 2672

14.2 UN proper shipping name.

AMMONIA SOLUTION

14.3 Transport hazard class(es).

8

14.4 Packing group.

III

14.5 Environmental hazards.

Yes

14.6 Special precautions for user.

No data available.

14.7 Maritime transport in bulk according to IMO instruments.

No data available.

SECTION 15. Regulatory information.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH),
Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No 1907/2006 (REACH)
Law dated 24 October 2011 on the transport of hazardous materials (Journal of Laws 227 item 1367 of 2011, as amended),
Government Statement of 6 March 2025 on the entry into force of the amendments to Annexes A and B to the Agreement concerning the international carriage of dangerous goods by road (ADR), done at Geneva on 30 September 1957.
Law dated 8 January 2013 on waste. (Journal of Laws 2013 item 21 as amended)
Law dated 13 June 2013 on the management of packaging and packaging waste. (Journal of Laws 2013 item 888 as amended),
Announcement of the Minister of Health of 2 March 2015 on the announcement of the consolidated text of the Regulation of the Minister of Health on the labelling of packaging of hazardous substances and hazardous mixtures and certain mixtures (Journal of Laws 2015, item 450)
Law dated 25 February 2011 on chemical substances and their mixtures (Journal of Laws 2011 No. 63 item 322, as amended),
Law dated 26 June 1974 Labour Code (consolidated text: Dz.U. 21 item 94 of 1998 as amended),
Regulation of the Minister of Family, Labour and Social Policy of 24 June 2024 on the maximum permissible concentrations and intensities of factors harmful to health in the work environment (Item 1017 with later amendments).
Regulation of the Minister of Climate of 2 January 2020 on the waste catalogue (Journal of Laws 2020, item 10).

15.2 Chemical safety assessment.

A chemical safety assessment has been carried out for this substance.
Annex XIV of the REACH Regulation – List of substances subject to authorization: not applicable
SVHC substances – Candidate list of substances of very high concern awaiting authorization: not applicable
Annex XVII of the REACH Regulation – Restrictions on the manufacture, placing on the market, and use of certain hazardous substances, mixtures, and articles: not applicable

SECTION 16. Other information.

H phrases:

H221 Flammable gas.
H280 Contains gas under pressure; may explode if heated.
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.

Description of abbreviations, acronyms and symbols used:

Flam. Gas 2 Flammable gas
Press Gas Gases under pressure
Acute Tox. 3 Acute toxicity
Skin Corr. 1B Skin corrosion/irritation
STOT SE 3 Specific target organ toxicity — single exposure

Aquatic Acute 1 Hazardous to the aquatic environment
Aquatic Chronic 2 Hazardous to the aquatic environment
NDS – Maximum allowable concentration
NDSP – Maximum allowable ceiling concentration
NDSCh – Maximum allowable momentary concentration.
DNEL – Level of exposure to a substance above which humans should not be exposed.
PNEC – concentration of chemical which marks the limit at which below no adverse effects of exposure in ecosystem are measured.
LC50 - (lethal concentration) - median lethal concentration, a statistically determined concentration of a substance, after exposure to which 50 percent of the organisms (exposed to the substance) can be expected to die during the exposure or during a specified contractual post-exposure period.
LD50 - (lethal dose) - medial lethal dose, the statistically determined size of a single dose of a substance, after administration of which 50% of exposed test organisms can be expected to die.
EC50 - (effective concentration) - medial effective concentration, statistically calculated concentration that induces in the environmental medium the specified effect in 50% of the experimental organisms under specified conditions
NOEC (no observed effects concentration) - the highest concentration for which there is no statistically or biologically significant increase in the frequency or severity of the effects of the substance in the test organisms relative to the control sample.
vPvB - Very persistent and very bioaccumulative substance
PBT - persistent, bioaccumulative and toxic substances
ADR – European agreement on the road transport of hazardous goods.
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail
IMDG – International Maritime Dangerous Goods Code
IATA – Regulation on the transport of dangerous goods issued by the International Air Transport Association

Trainings:

Before starting work with the product it is mandatory to subject employees to EHS training in connection with the presence of chemical factors in work environment. Conduct, document and familiarize employees with the results of the occupational risk assessment at the work station related to the presence of chemical factors.

SOURCE MATERIALS:

Annex to Regulation (EU) 2020/878 of 18 June 2020.
Regulations mentioned in section 15 of the MSDS.

Changes to the previous version:

Section	Description

The information contained in the safety data sheet applies only to the product listed in title. Data contained in safety data sheet should be treated only as an help for safe use of the product. Since conditions of storage, transport and use are beyond our control they cannot constitute a guarantee in the legal sense. In each case the statutory provisions and any rights of third parties must be observed. Safety data sheet does not constitute an assessment of hazards in the workplace. The product should not be used for purposes other than those specified in section 1 without prior consultation with TOMCHEM Sp. z o.o.

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