SAFETY DATA SHEET

Version 8.6
Revision Date 15.12.2022
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Ammonia solution 32% EMPLURA®

Product Number : 1.05426
Catalogue No. : 105426
Brand : Millipore

1.2 Other means of identification

No data available

1.3 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Reagent for analysis, Chemical production

1.4 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Pty. Ltd.
Suite 1, Level 1, Building B
11 Talavera Road
MACQUARIE PARK NSW 2113
AUSTRALIA

Telephone : +61 1800 800 097

1.5 Emergency telephone

Emergency Phone # : Free call (24/7): 1800 448 465
Int'l (24/7): +61 2 9037 2994
(CHEMTREC)

SECTION 2: Hazards identification

2.1 GHS Classification

Skin corrosion/irritation (Category 1), H314
Serious eye damage/eye irritation (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word Danger

Hazard statement(s)
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 statement(s)

Prevention

P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

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 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	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.
P391	Collect spillage.

Storage

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

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

Substance / Mixture : Mixture

3.2 Mixtures

Hazardous ingredients

Component		Classification	Concentration
ammonia solution			
CAS-No. EC-No. Index-No.	1336-21-6 215-647-6 007-001-01-2	Skin Corr./Irrit. 1B; Eye Dam./Irrit. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H314, H318, H335, H400, H411 Concentration limits: >= 5 %: STOT SE 3, H335; M-Factor - Aquatic Acute: 10	>= 30 - < 50 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
Not combustible.
Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.
Ambient fire may liberate hazardous vapours.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not empty into drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.Observe possible material restrictions (see sections 7 and 10).Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Observe label precautions.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
No metal or light-weight-metal containers.
Tightly closed.

Recommended storage temperature see product label.

Storage class
Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min

Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.40 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.

Control of environmental exposure
Do not empty into drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	liquid
b)	Color	colorless
c)	Odor	stinging
d)	Melting point/freezing point	Melting point: -91.5 °C
e)	Initial boiling point and boiling range	37.7 °C at 1,013 hPa
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	Upper explosion limit: 33.6 %(V) Lower explosion limit: 15.4 %(V)
h)	Flash point	No data available
i)	Autoignition temperature	No data available
j)	Decomposition temperature	No data available
k)	pH	at 20 °C strongly alkaline
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	at 20 °C soluble
n)	Partition coefficient: n-octanol/water	log Pow: -1.38 - (anhydrous substance), Bioaccumulation is not expected.

o)	Vapor pressure	ca.837 hPa at 20 °C
p)	Density	0.88 g/cm3 at 20 °C
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	Not classified as explosive.
t)	Oxidizing properties	none

9.2 Other safety information

Minimum ignition energy	380 - 680 mJ

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.

10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances:
Oxidizing agents
Mercury
Oxygen
silver compounds
nitrogen trichloride
hydrogen peroxide
silver
antimony hydride
Halogens
Acids
Calcium
Chlorine
Chlorites
auric salts
perchlorates
sodium hypochlorite
mercury compounds
halogen oxides
Heavy metals
Heavy metal salts
Acid chlorides
Acid anhydrides
Risk of ignition or formation of inflammable gases or vapours with:
Boranes
Boron
Oxides of phosphorus

Nitric acid
silicon compounds
chromium(VI) oxide
chromyl chloride
Exothermic reaction with:
Acetaldehyde
Acrolein
Barium
boron compounds
Bromine
halogen-halogen compounds
hydrogen bromide
silane
Hydrogen chloride gas
halogen compounds
dimethylsulfate
nitrogen oxides
Fluorine
Hydrogen fluoride
chlorates
carbon dioxide
Ethylene oxide
polymerisable

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Aluminum, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity
Oral: No data available
Symptoms: mucosal irritations, Cough, Shortness of breath, bronchitis, Possible damages:, damage of respiratory tract
Dermal: No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe irritations
Remarks: (29% solution)
(RTECS)
Remarks: Dermatitis
Necrosis

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe irritations
Remarks: (29% solution)

(RTECS)
Remarks: Mixture causes serious eye damage.
Risk of blindness!

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Mixture may cause respiratory irritation. - Respiratory system

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Cough
Shortness of breath
bronchitis
gastric pain
Bloody vomiting
Nausea
collapse
shock
Unconsciousness

Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

ammonia solution

Acute toxicity
Oral: No data available
Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Dermal: No data available

Skin corrosion/irritation
Remarks: Causes skin burns.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Remarks: Causes serious eye damage.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

SECTION 12: Ecological information

12.1 Toxicity

Mixture
No data available

12.2 Persistence and degradability

Biodegradability Remarks: No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Biological effects:
Harmful effect due to pH shift.
Forms toxic and corrosive mixtures with water even if diluted.
Discharge into the environment must be avoided.
No data available

Components

ammonia solution

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 0.068 mg/l - 96 h Remarks: (ECHA) The value is given in analogy to the following substances: ammonium sulphate
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 101 mg/l - 48 h Remarks: (ECHA)

anhydrous

Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Ictalurus punctatus - 0.048 mg/l - 31 d (OECD Test Guideline 215) Remarks: anhydrous
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test LC50 - Daphnia magna (Water flea) - 4.07 mg/l - 96 h (US-EPA) Remarks: The value is given in analogy to the following substances: The value is given in analogy to the following substances: ammonium chloride
	flow-through test NOEC - Daphnia magna (Water flea) - 0.79 mg/l - 96 h (US-EPA) Remarks: The value is given in analogy to the following substances: The value is given in analogy to the following substances: ammonium chloride

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 2672 IMDG: 2672 IATA-DGR: 2672

14.2 UN proper shipping name
ADR/RID: AMMONIA SOLUTION
IMDG: AMMONIA SOLUTION
IATA-DGR: Ammonia solution

14.3 Transport hazard class(es)
ADR/RID: 8 IMDG: 8 IATA-DGR: 8

14.4 Packaging group
ADR/RID: III IMDG: III IATA-DGR: III

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: yes IATA-DGR: no

14.6 Special precautions for user
None

14.7 Incompatible materials
Aluminum, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals

Other regulations
Hazchem Code : 2X

SECTION 15: Regulatory information

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

Standard for the Uniform Scheduling of Medicines and Poisons	:	No poison schedule number allocated

SECTION 16: Other information

Training advice Provide adequate information, instruction and training for operators.
Full text of H-Statements referred to under sections 2 and 3.

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

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