

# **Safety Data Sheet**

according to Regulation (EC) No 1907/2006

## Ammonia solution 4 mol/l - 4 N solution

Revision date: 14.02.2024 Product code: 26152 Page 1 of 11

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Ammonia solution 4 mol/l - 4 N solution

49EA-N2HS-C006-2UYE

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

#### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Uses advised against

Do not use for private purposes (household).

# 1.3. Details of the supplier of the safety data sheet

AnalytiChem GmbH Company name:

ACD

Street: Stempelstraße 6 Place: D-47167 Duisburg

Telephone: 0203/5194-0 Telefax: 0203/5194-290

info@analytichem.de E-mail:

Contact person: Abteilung Produktsicherheit Telephone: 0203/5194-107/117

produktsicherheit@analvtichem.de E-mail:

www.analytichem.de Internet:

Responsible Department: Abteilung Produktsicherheit

1.4. Emergency telephone For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: number:

1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls

accepted)

#### **Further Information**

This product is a mixture. REACH Registration Number see section 3.

#### **SECTION 2: Hazards identification**

# 2.1. Classification of the substance or mixture

# Regulation (EC) No 1272/2008

Skin Corr. 1B; H314 Eye Dam. 1; H318 **STOT SE 3; H335** Aquatic Acute 1; H400 Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

# 2.2. Label elements

## Regulation (EC) No 1272/2008

#### Hazard components for labelling

ammonia 7,5 %

Signal word: Danger

Pictograms:









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#### **Hazard statements**

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

# **Precautionary statements**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves and eye/face protection.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with

water or shower.

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/doctor.

#### 2.3. Other hazards

No data available

# **SECTION 3: Composition/information on ingredients**

#### 3.2. Mixtures

#### Chemical characterization

Mixtures in aqueous solution

### Relevant ingredients

CAS No	Chemical name			Quantity
	EC No Index No REACH No			
	Classification (Regulation (EC) No 1272/2008)			
1336-21-6	Ammonia			
	215-647-6 007-001-01-2 01-2119488876-14			
	Skin Corr. 1B, Aquatic Acute 1, Aquatic Chronic 2; H314 H400 H411			

Full text of H and EUH statements: see section 16.

## Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity	
	Specific Conc. Limits, M-factors and ATE			
1336-21-6	215-647-6	Ammonia	5 - < 10 %	
	inhalation: LC50 = 4230 mg/l (vapours); oral: LD50 = 350 mg/kg STOT SE 3; H335: >= 5 - 100 Aquatic Acute 1; H400: M=10			

#### **Further Information**

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

## **SECTION 4: First aid measures**

## 4.1. Description of first aid measures

#### **General information**

Self-protection of the first aider

Avoid contact with skin, eyes and clothes.

Take off immediately all contaminated clothing.

#### After inhalation

Provide fresh air.

Call a physician immediately.

# After contact with skin

Wash immediately with: Water



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Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

### After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

Protect uniniured eve.

#### After ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting.

Do not allow a neutralisation agent to be drunk.

Call a physician immediately.

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

Irritant

Corrosion

Cough

Dyspnoea

Gastrointestinal complaints

gastric perforation

Unconsciousness

Vomiting

Circulatory collapse

Spasms

Pulmonary oedema

Risk of serious damage to eyes.

## 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

Co-ordinate fire-fighting measures to the fire surroundings.

### Unsuitable extinguishing media

no restriction

## 5.2. Special hazards arising from the substance or mixture

Non-combustible liquids

Formation of explosive mixtures with: Air

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NOx)

## 5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

In case of fire and/or explosion do not breathe fumes.

Avoid contact with skin, eyes and clothes.

#### Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

Use water spray jet to protect personnel and to cool endangered containers.

# **SECTION 6: Accidental release measures**

# 6.1. Personal precautions, protective equipment and emergency procedures



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#### For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

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

#### For emergency responders

Precautionary statements For emergency responders: Personal protection equipment: see section 8

### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.

### 6.3. Methods and material for containment and cleaning up

#### For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

# For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

#### Other information

Provide adequate ventilation.

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

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

## 6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

# **SECTION 7: Handling and storage**

## 7.1. Precautions for safe handling

#### Advice on safe handling

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff.

Use personal protection equipment. Use extractor hood (laboratory).

Provide adequate ventilation. Do not breathe vapour/aerosol.

Avoid contact with skin, eyes and clothes.

#### Advice on protection against fire and explosion

Usual measures for fire prevention.

Formation of explosive mixtures with: Air

#### Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Avoid: aerosol or mist formation Do not breathe

vapour/aerosol.

# Further information on handling

Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary.

Take off immediately all contaminated clothing and wash it before reuse.

# 7.2. Conditions for safe storage, including any incompatibilities

# Requirements for storage rooms and vessels

Keep container tightly closed.



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Corrosive to metals.

Unsuitable container/equipment material: Metal

# Further information on storage conditions

Keep away from heat. Protect from sunlight.

# 7.3. Specific end use(s)

Laboratory chemicals

# **SECTION 8: Exposure controls/personal protection**

# 8.1. Control parameters

# Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
7664-41-7	Ammonia, anhydrous	20	14		TWA (8 h)	
		50	36		STEL (15 min)	

### **DNEL/DMEL values**

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
1336-21-6	Ammonia			
Worker DNEL,	long-term	inhalation	systemic	47,6 mg/m³
Worker DNEL,	acute	inhalation	systemic	47,6 mg/m³
Worker DNEL,	long-term	inhalation	local	14 mg/m³
Worker DNEL,	acute	inhalation	local	36 mg/m³
Worker DNEL,	long-term	dermal	systemic	6,8 mg/kg bw/day
Worker DNEL,	acute	dermal	systemic	6,8 mg/kg bw/day
Consumer DNE	EL, long-term	inhalation	systemic	23,8 mg/m³
Consumer DNEL, acute		inhalation	systemic	23,8 mg/m³
Consumer DNE	EL, long-term	inhalation	local	2,8 mg/m³
Consumer DNEL, acute		inhalation	local	7,2 mg/m³
Consumer DNEL, long-term		dermal	systemic	68 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	68 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	6,8 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	6,8 mg/kg bw/day

## **PNEC values**

CAS No	Substance		
Environmental compartment Value		Value	
1336-21-6	Ammonia		
Freshwater 0,00°		0,001 mg/l	
Freshwater (intermittent releases) 0,007		0,007 mg/l	
Marine water 0,001 mg/l		0,001 mg/l	

# 8.2. Exposure controls

## Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.



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If handled uncovered, arrangements with local exhaust ventilation have to be used.

#### Individual protection measures, such as personal protective equipment

## Eye/face protection

goggles

Wear eye/face protection.

### Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 741 Dermatril® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. 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).

### Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

## Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols. Filtering device with filter or ventilator filtering device of type: K

## **Environmental exposure controls**

Do not allow to enter into surface water or drains.

## **SECTION 9: Physical and chemical properties**

## 9.1. Information on basic physical and chemical properties

Physical state: Liquid
Colour: colourless
Odour: stinging

Melting point/freezing point:

Boiling point or initial boiling point and

No data available

No data available

boiling range:

Flammability:

Lower explosion limits:

Upper explosion limits:

No data available

Upper explosion limits:

No data available

Flash point:

No data available



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No data available Auto-ignition temperature: No data available Decomposition temperature: pH-Value (at 20 °C): alkaline Viscosity / kinematic: No data available Water solubility: completely miscible

Solubility in other solvents

No data available

Partition coefficient n-octanol/water: No data available Vapour pressure: No data available

(at 20 °C)

Vapour pressure: No data available Density: 0,967 g/cm<sup>3</sup> Bulk density: No data available Relative vapour density: No data available

## 9.2. Other information

### Information with regard to physical hazard classes

Explosive properties No data available

Sustaining combustion: No data available

Self-ignition temperature

Solid: No data available No data available Gas:

Oxidizing properties No data available

#### Other safety characteristics

Evaporation rate: No data available No data available Solvent separation test: Solid content:

No data available Sublimation point:

Softening point: No data available Pour point: No data available

No data available:

No data available Viscosity / dynamic: Flow time: No data available

# **Further Information** No data available

# **SECTION 10: Stability and reactivity**

## 10.1. Reactivity

No data available

## 10.2. Chemical stability

Formation of explosive mixtures with: Air

# 10.3. Possibility of hazardous reactions

Oxidising agent, mercury (Hg)., Oxygen, Hydrogen peroxide, Acid, Chlorine, Heavy metals, Nitric acid, Bromine, Hydrogen bromide (HBr), Hydrochloric gas, Nitrogen oxides (NOx), Hydrogen fluoride, Carbon dioxide,

# 10.4. Conditions to avoid

Heat

# 10.5. Incompatible materials

Metal



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# 10.6. Hazardous decomposition products

In case of fire may be liberated: SECTION 5: Firefighting measures

#### **Further information**

No data available

## **SECTION 11: Toxicological information**

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

#### Toxicocinetics, metabolism and distribution

There are no data available on the preparation/mixture itself.

#### **Acute toxicity**

Based on available data, the classification criteria are not met.

#### **ATEmix calculated**

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
1336-21-6	Ammonia					
	oral	LD50 mg/kg	350	Rat	Journal of Industrial Hygiene and Toxico	OECD Guideline 401
	inhalation (1 h) vapour	LC50	4230 mg/l	Mouse	Bull. Environm. Contam. Toxicol, 1982, 2	Assessment of acute inhalation toxicity

# Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

## Sensitising effects

Based on available data, the classification criteria are not met.

## Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

#### STOT-single exposure

May cause respiratory irritation. (Ammonia)

#### STOT-repeated exposure

Based on available data, the classification criteria are not met.

## **Aspiration hazard**

Based on available data, the classification criteria are not met.

#### Specific effects in experiment on an animal

There are no data available on the preparation/mixture itself.

# Additional information on tests

There are no data available on the preparation/mixture itself.

## Practical experience

There are no data available on the preparation/mixture itself.

#### 11.2. Information on other hazards

# **Endocrine disrupting properties**

There are no data available on the preparation/mixture itself.

#### Other information

Irritant

Corrosion



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Cough

Dyspnoea

Gastrointestinal complaints

gastric perforation

Unconsciousness

Vomiting

Circulatory collapse

Spasms

Pulmonary oedema

Risk of serious damage to eyes.

# **SECTION 12: Ecological information**

### 12.1. Toxicity

Very toxic to aquatic life.

Harmful to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h]   [d]	Species	Source	Method
1336-21-6	Ammonia						
	Acute fish toxicity	LC50 3,4 mg/l	0,75 -	96 h	Pimephales promelas	Trans Amer Fish Soc; 112 (5). 1983. 705-	Assessment of acute toxicity in the fath
	Acute crustacea toxicity	EC50	101 mg/l	48 h	Daphnia magna	Environ. Toxicol. Chem. 5: 443-447 (1986	other: ASTM E729-80
	Fish toxicity	NOEC	1,2 mg/l		Oncorhynchus gorbuscha	Fish. Bull. 78(3): 641-648 (1980)	OECD Guideline 210

## 12.2. Persistence and degradability

Not readily biodegradable (according to OECD criteria)

## 12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

#### Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
1336-21-6	Ammonia	-1,38

#### 12.4. Mobility in soil

There are no data available on the mixture itself.

#### 12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

# 12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

#### **Further information**

Do not allow to enter into surface water or drains.

Discharge into the environment must be avoided.

# **SECTION 13: Disposal considerations**

### 13.1. Waste treatment methods

#### **Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.



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Do not allow to enter into surface water or drains.

### Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Dispose of waste according to "Kreislaufwirtschafts- und Abfallgesetz (KrW-/AbfG)".

# **SECTION 14: Transport information**

Land transport (ADR/RID)

14.1. UN number or ID number:No dangerous good in sense of this transport regulation.14.2. UN proper shipping name:No dangerous good in sense of this transport regulation.14.3. Transport hazard class(es):No dangerous good in sense of this transport regulation.14.4. Packing group:No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number:No dangerous good in sense of this transport regulation.14.2. UN proper shipping name:No dangerous good in sense of this transport regulation.14.3. Transport hazard class(es):No dangerous good in sense of this transport regulation.14.4. Packing group:No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number:No dangerous good in sense of this transport regulation.14.2. UN proper shipping name:No dangerous good in sense of this transport regulation.14.3. Transport hazard class(es):No dangerous good in sense of this transport regulation.14.4. Packing group:No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:No dangerous good in sense of this transport regulation.14.2. UN proper shipping name:No dangerous good in sense of this transport regulation.14.3. Transport hazard class(es):No dangerous good in sense of this transport regulation.14.4. Packing group:No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

# 14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

#### 14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

# **SECTION 15: Regulatory information**

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

#### **EU** regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

Information according to Directive

2012/18/EU (SEVESO III):

E1 Hazardous to the Aquatic Environment

**National regulatory information** 

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile

work protection guideline' (94/33/EC).

Water hazard class (D): 2 - obviously hazardous to water

# **SECTION 16: Other information**

#### Changes



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This data sheet contains changes from the previous version in section(s): 1,12.

### Abbreviations and acronyms

Skin Corr: Skin corrosion Eye Dam: Eye damage

STOT SE: Specific target organ toxicity - single exposure

Aquatic Acute: Acute aquatic hazard Aquatic Chronic: Chronic aquatic hazard

## Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
STOT SE 3; H335	Calculation method
Aquatic Acute 1; H400	Calculation method
Aquatic Chronic 3; H412	Calculation method

## Relevant H and EUH statements (number and full text)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
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.
H412	Harmful to aquatic life with long lasting effects.

## **Further Information**

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)