

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 1 / 6
Version: 2
Print Date: 30.09.2011

1.0 Commercial name / Company

AMMONIA/DIMETHYLETHER MIXTURE, R723

Verwendung: Kälteerzeugung

Company:

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Emergency contact details:

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2.0 Possible hazards

Special instructions on the dangers to man and the environment:

R23 Toxic by inhalation.

R34 Causes burns.

R12 Extremely flammable.

R50 Very toxic to aquatic organisms.

3. Composition/details of components

Substance/formulation: Formulation

Chemical characterization

Compressed liquefied gas made up of

(60 ± 10) %m/m ammonia (CAS-No. 7664-41-7 EINECS-No. 231-635-3) and

(40 ± 10) % m/m dimethylether (CAS-No. 00115-10-6 EINECS-No. 204-065-8)

4. First aid measures

4.1. General instructions:

Calm, fresh air, seek medical advice. If there is a risk of unconsciousness, place victim on side in a stable position and transport in this position; If necessary, give artificial respiration. Contaminated, soaked clothing should be removed immediately.

4.2. Following inhalation:

Inhale corticosteroid controlled dosage aerosol immediately. Following exposure to higher gas concentration levels or liquefied ammonia/dimethylether: seek medical advice immediately

4.3. Following contact with the skin:

Immediately wash off thoroughly using plenty of water, sterile protective dressing, consult skin specialist.

4.4. Following contact with the eyes:

Immediately rinse thoroughly with plenty of water for at least 15 minutes keeping eyelids open, consult eye specialist.

4.5. If swallowed:

Rinse out mouth immediately and then drink plenty of water, seek medical advice. Swallowing is an unlikely route of exposure.

4.6. Instructions for doctor:

Possible effects of exposure: coughing, breathing difficulties, unconsciousness, frostbite

Possible hazards: formation of pulmonary edemas. Symptomatic treatment (decontamination, vital functions), no specific antidote known, for pulmonary edema prophylaxis: corticosteroid controlled dosage aerosol.

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 2 / 6
Version: 2
Print Date: 30.09.2011

5. Fire-fighting measures

5.1. Suitable extinguishing agents:

Foam, carbon dioxide extinguishing powder.

Reduce escaped gas/vapours with water spray jet.

Do not extinguish a leaking gas flame unless absolutely necessary, as spontaneous explosive re-ignition is possible.

5.2. In the event of a fire in the vicinity:

Containers/tanks should be cooled with water spray jet.

No direct exposure to: full water jet, increased vaporization

5.3. Special protective equipment:

Self-contained breathing apparatus and a chemical protection suit must be worn.

5.4. Further information:

Experience has shown that no explosive mixtures are formed in the open air.

Contaminated water used for fighting the fire should be collected separately, it must not be allowed to get into the drains or sewers.

6. Accidental release measures

6.1. Personal safety measures:

Pay attention to the direction of the wind and clear the area.

Wear suitable protective clothing during work.

6.2. Environmental safety measures:

Escaped gas should be reduced with water spray jet.

Must not be allowed to get into drains or sewers. If possible, shut off gas escape.

6.3. Procedure for cleaning/ absorption:

Use a neutralizing agent, dilute with water. Air room.

7. Handling and storage

7.1. Handling

Fire and explosion protection:

Keep away from sources of ignition and electrostatic charges. Do not smoke. Vapours can form an explosive mixture when combined with air. Particularly in containers. Secure bottles to ensure they cannot fall over and earth equipment before introducing the gas mixture into technical systems, purge air from systems and prevent backfeed into storage container.

7.2. Storage

Do not store together with: acids, oxidizing gases and fire-inducing substances

Store cool. Heating leads to a rise in pressure and the risk of rupturing.

Must not be allowed to get into water or soil.

8. Exposure controls and personal safety equipment

8.1. Additional information for the design of technical systems (see 7)

8.2. Workplace-related limits to be monitored

Ammonia:

MAC: short-term value: 50 ml/m³ = 35 mg/m³ (TRGS 900, Germany)

long-term value: 20 ml/m³ = 14 mg/m³

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 3 / 6
Version: 2
Print Date: 30.09.2011

Dimethylether:

MAC: short-term value: 2000 ml/m³ = 3820 mg/m³
 long-term value: 1000 ml/m³ = 1910 mg/m³

8.3. Personal protective equipment

8.3.1. Respiratory protection:

Self-contained breathing apparatus. In the case of short-term exposure at lower concentration levels: filter for ammonia

8.3.2. Hand protection:

safety gloves which are resistant to the product

8.3.3. Eye protection:

facial protection or side-shielded safety goggles

8.3.4. Body protection:

complete chemical protection suit (e.g. made from butyl rubber).
Self-contained breathing apparatus

8.3.5. General safety and hygiene measures:

Contaminated, soaked clothing should be immediately removed. Avoid contact with the skin, eyes, clothing. Keep away from food, beverages and animal feed.

9. Physical and chemical properties

Physical state:	compressed, liquefied gas mixture
Colour:	colourless
Odour:	characteristically pungent like ammonia
Change of state	
Melting point/melting range:	< - 90 °C
Boiling point/boiling point range:	- 36.6 °C
Flash point:	- 42 °C
Explosive limits:	
- lower	6.0 Vol. %
- upper	32.2 Vol. %
Ignition temperature:	235 °C
Vapour pressure: (20 °C)	9.22 bar
(30 °C)	12.42 bar
(50 °C)	21.27 bar
specific volumes: (-34 °C)	1.428 dm ³ /kg liquid
(0 °C)	0.1977 m ³ /kg gaseous (4.908 bar)
Water	
solubility: (18 °C)	517 g/l (ammonia)
(18 °C)	70 g/l (dimethylether)
pH value in aqueous solution at (17 g/l, 20 °C):	11.6
Viscosity:	0.166 mPas (liquid at 0 °C)
	9.3 E-3 mPas (gaseous at 0 °C and 4.908 bar)

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 4 / 6
Version: 2
Print Date: 30.09.2011

10. Stability and reactivity

10.1. Conditions to avoid:

Thermal decomposition: > 235 °C

10.2. Hazardous reactions with:

Acids, halogens, oxidizing agents

Hazardous decomposition products: nitrous gases, carbon monoxide, carbon dioxide.

Warms up intensely when exposed to water.

11. Toxicological information

Acute toxicity ammonia (gaseous, liquid)

LC50/4 h/inhal.: 2000 mg/l (rat)

LD50/oral: 350 mg/kg (rat)

Corrosive.

Depending on the concentration can cause severe irritation of the eyes and respiratory tracts. There is a risk of severe damage to the eyes. Can lead to: pulmonary edemas, the risk of suffocation. Due to the intensive odour, the danger begins in general once the limit of bearability has been exceeded.

Dimethylether has no known toxic effects.

12. Ecological information

12.1. Information on elimination (ammonia)

Inorganic product, cannot be eliminated from water using a biological cleaning procedure. Ammonia is classified in WHC 2.

12.2. Behaviour in environmental compartments (ammonia)

Due to the distribution coefficient n-octanol/water (log Pow -1.14) accumulation in organisms is not to be expected.

12.3. Ecotoxic effects (ammonia)

Fish toxicity (acute), dependent on pH value

Oncorhynchus mykiss: LC50 (96 h): 0.16 – 1.1 mg/l (literature reference)

Daphnia toxicity (acute)

Daphnia magna: EC50 (48 h): 25.4 mg/l (literature reference)

Depending on local conditions and existing concentrations, the introduction into biological waste treatment plants can cause disruptions in the degradative activities of activated sludge.

12.4. Further ecological information:

The product is a base. Before the introduction of waste water into waste treatment plants, neutralization is usually necessary.

From the existing information on ecotoxicity the following can be deduced: extremely toxic for water organisms.

For dimethyl ether, no harmful effects of the product on the environment are known.

13. Regulatory information

Product:

Before the introduction of waste water into waste treatment plants, neutralization is usually necessary. As a result of the low solubility of dimethylether (70 g/l at 18 °C), when introduced it may accumulate over the water and the lower explosion limit of the pure substance of 3.4 vol% may be exceeded. Aqueous neutralization agents only absorb ammonia, larger quantities of dimethylether should be removed by stripping out of the water. Use in agriculture should be checked.

Uncleaned packaging: return to the manufacturer with residual pressure.

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 5 / 6
Version: 2
Print Date: 30.09.2011

14. Transport information

Land transport

ADR/RID

Class: 2
Classification code: 2TFC
Warning plate: 263
Hazard No.: 263
UN No.: 3309
Product description: LIQUEFIED GAS; TOXIC; FLAMMABLE; CORROSIVE; N.O.S.
AMMONIA/DIMETHYLETHER, ANHYDROUS
Hazard label 2.3: Toxic gas
Hazard label 2.1: Flammable gas
Hazard label 8: Corrosive substance/formulation

Inland shipping

Special regulation:

ADN/ADNR

Class: 2
Classification code: 2TFC
Product description: LIQUEFIED GAS; TOXIC; FLAMMABLE; CORROSIVE; N.O.S.
AMMONIA/DIMETHYL ETHER, ANHYDROUS
Hazard label 2.3: Toxic gas
Hazard label 2.1: Flammable gas
Hazard label 8: Corrosive substance/formulation

Carriage by sea

IMDG/GGVSee

Class: 2.3
UN No.: 3309
EMS: 2-08
MFAG: 725
Marine pollutant: no
Label: 2.3 + 2.1 + 8
Correct technical name: LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.,
AMMONIA/DIMETHYLETHER ANHYDROUS.

Air transport

ICAO/IATA

Class: 2.3
UN/ID No.: 3309
Label: 2.3 + 2.1 + 8
Correct technical name: LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.,
AMMONIA/DIMETHYLETHER ANHYDROUS.

15. Regulatory information

15.1. EU classification

not named in Appendix I of the Directive EU67/548

Symbol: F+ - extremely flammable
T - toxic
N - harmful to the environment

Schick Safety data sheet accordance with (EG) Nr. 1907/2006
Date: 30.09.2011
Product: **LIQUEFIED GAS MIXTURE AMMONIA/DIMETHYLETHER**

Page 6 / 6
Version: 2
Print Date: 30.09.2011

15.2. Information relating to specific hazards:

- R12 – Extremely flammable
- R23 – Toxic by inhalation
- R34 – Causes burns
- R50 – Very toxic to aquatic organisms.

15.3. Safety advice:

- S9 – Keep container in a well ventilated place.
- S16 – Keep away from ignition sources – No smoking
- S26 – In case of eye contact, rinse immediately with plenty of water and seek medical advice.
- S33 – Take precautionary measures against electrostatic charges
- S36/37/39 – During work wear suitable protective clothing, protective gloves and safety glasses/facial protection.
- S43 – In case of fire use sand, carbon dioxide or powder extinguisher, do not use water
- S45 – In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible)
- S61 – Avoid release into environment. Refer to special instructions/safety data sheet.

15.4. National Regulations

- TRGS 900 (Germany):
- Technische Regeln Druckgase (TRG, Germany) 101.
- Technische Regeln Druckbehälter (TRB, Germany) 280.
- Unfallverhütungsvorschriften (Germany):
- VBG 61 Gase (Germany).
- Water Hazard Class: 2, VwVwS (Germany) dated 1999-05-17, Appendix 2.

16. Other information

The information contained herein represents the latest state of our knowledge and does not represent any guarantee of characteristics. It is the responsibility of the recipients of our product to observe existing laws and regulations. Before the product is used in any new test or process, a thorough study should be undertaken on material compatibility and safety.