



MATERIAL SAFETY DATA SHEET

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Version : 8

Date : 15/3/2011

Supersedes : 2/12/2010

AMMONIA

1063

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Product name : AMMONIA
CAS nr : 7664-41-7
EC Number : 231-635-3
REACH registration number : No information available

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

1.2.1 Relevant identified uses Refrigerant

1.3. Details of the supplier of the safety data sheet

Name : DEHON SERVICE
Address : 26, Avenue du Petit Parc
94683 VINCENNES cedex
FRANCE

Telephone number : +33 (0) 1 43 98 75 00

Telefax number : +33 (0) 1 43 98 21 51

e-mail : ContactFDS@dehon.com

1.4. Emergency telephone number EMERGENCY TELEPHONE NUMBER (24h/24) : + 33 (0) 1 72 11 00 03

Anti-poison Center :INRS/ORFILA (France) : +33 (0) 1 45 42 59 59

Anti-poison Centre (Spain) : +34 91 562 04 20

Anti-poison Centre (Belgium) : +32 70 245 245

Anti-poison Centre (Netherlands) : +31 30 274 8888

Anti-poison Centre (United Kingdom) : +44 870 600 6266

Poisons Information Centre (Hungary) : +36 80 201 199

2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1 CLP classification :

- Physical hazards Flammable gases - Category 2 (Flam. Gas 2) ; H221
Gases under pressure (Press. Gas) ; H280
- Health hazards Acute toxicity, Inhalation - category 3 (Acute Tox. 3) ; H331
Skin corrosion - Category 1B (Skin Corr. 1B) ; H314
- Environmental hazards Hazardous to the aquatic environment - Acute hazard - Category 1 - (Aquatic Acute 1); H400

2.1.2 Directive EEC/67/548 :

R10
T; R23
C; R34
N; R50

2.2. Label elements

Product identifier Ammonia, anhydrous
CAS Number : 7664-41-7
EC Number : 231-635-3

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2 HAZARDS IDENTIFICATION

(continued)

- Hazard pictograms



- Signal words

Danger

- * Hazard statements

H221 : Flammable gas.

H280 : Contains gas under pressure; may explode if heated.

H314 : Causes severe skin burns and eye damage.

H331 : Toxic if inhaled.

H400 : Very toxic to aquatic life.

- Precautionary statements :

- Prevention

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Avoid release to the environment.

- Response

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.

IF ON SKIN (or hair) : Remove immediately all contaminated clothing. Rinse skin with water/shower.

In all case : Call a POISON CENTER or doctor/physician.

- Storage

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

2.3. Other hazards

May form flammable/explosive vapour-air mixtures

3 COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE :

Substance name	Contents	CAS No	EC No	Annex No	Classification
Anhydrous ammonia	: 100 %	7664-41-7	231-635-3	007-001-00-5	R10 T; R23 C; R34 N; R50 ----- Acute Tox. 3 (H331) Skin Corr. 1B (H314) Flam. Gas 2 (H221) Aquatic Acute 1 (H400)

4 FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation :

Move the affected person away from the contaminated area and into the fresh air
Make the person rest

Skin contact :

Immediately rinse with plenty of water (for at least 15 minutes)
If skin burns appear, call a doctor immediately

Eye contact :

Rinse immediately with plenty of water (for at least 15 minutes)
Consult an eye specialist immediately

Ingestion :

Not specifically applicable (gas)

Protection of first-aiders :

Do not enter without an appropriate protective equipment
- self-contained breathing apparatus**DEHON SERVICE**

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4 FIRST AID MEASURES

(continued)

- 4.2. Most important symptoms and effects, both acute and delayed
- Acute symptoms :
- protective clothing
 - Irritation to throat and respiratory system
 - Watering of the eyes
 - Headaches
 - Nausea
 - Coughing
 - Vomiting

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

5 FIRE-FIGHTING MEASURES

- 5.1. Extinguishing media
- Suitable extinguishing media :
- All extinguishing agents can be used
Prefer : Carbon dioxide (CO₂) ; Powders
- 5.2. Special hazards arising from the substance or mixture
- Specific hazards :
- Gas/air mixtures are explosive
- 5.3. Advice for fire-fighters
- Specific fire fighting methods :
- Cool down the containers exposed to heat with a water spray
Never introduce water or any aqueous agent into tanks or containers
Contain the extinguishing fluids by bunding (the product is hazardous for the environment)
- Protection of fire-fighters :
- Self-contained breathing apparatus
Impermeable boots and protective equipment

6 ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures
- Only qualified personnel equipped with suitable protective equipment may intervene
Evacuate the danger area.
Do not smoke
No flames, No sparks. Eliminate all sources of ignition
Mechanically ventilate the spillage area, whilst avoiding the formation of explosive concentrations.
- 6.2. Environmental precautions
- Prevent the product from entering drains (risk of explosion)
- 6.3. Methods and material for containment and cleaning up
- Recovery :
- Spray with water
- Neutralization :
- Neutralize with :
- acidic solution.
Absorb with :
- dry sand.
- inert absorbent material.

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6 ACCIDENTAL RELEASE MEASURES (continued)

- Disposal : Dispose of contaminated materials in accordance with current regulations
6.4 Reference to other sections For further information refer to section 8 "Exposure controls/personal protection"

7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Technical measures :

Special electrical equipment.
Material and equipment suitable for use under explosive conditions

Precautions :

Work in a well-ventilated area
Avoid any direct contact with the product
Smoking is forbidden
Avoid the build-up of electrostatic charge

Industrial hygiene :

Do not drink, eat or smoke in the workplace
Always wash hands after handling the product
Separate working clothes from town clothes

7.2. Conditions for safe storage, including any incompatibilities

Technical measures :

Anti-corrosion electrical installations.

Storage conditions :

- Recommended :

Store :
- in a cool, well-ventilated area
- away from any source of ignition
- away from any source of heat
- away from direct sunlight

Incompatible products :

Halogens
Oxidizing materials
Acids
Metals

Packaging materials :

- Recommended :

Ordinary steel.

Further information :

In the presence of humidity corrodes copper, zinc and numerous alloys

7.3. Specific end use(s)

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Engineering measures :

Ensure good ventilation of the work station

Occupational Exposure Limits :

Anhydrous ammonia : France : LEP - VME (8h; mg/m³) : 7
Anhydrous ammonia : France : LEP - VME (8h; ppm) : 10
Anhydrous ammonia : France : LEP - VLE (15min; mg/m³) : 14
Anhydrous ammonia : France : LEP - VLE (15min; ppm) : 20
Anhydrous ammonia : Germany : MAK - TWA (8h; mg/m³) : 14
Anhydrous ammonia : Germany : MAK - TWA (8h; ppm) : 20
Anhydrous ammonia : Germany : MAK - STEL (15min; mg/m³) : 28
Anhydrous ammonia : Germany : MAK - STEL (15min; ppm) : 40
Anhydrous ammonia : Netherlands : MAC - TWA (8h; mg/m³) : 14
Anhydrous ammonia : Netherlands : MAC - STEL (15min; mg/m³) : 36

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8 EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

Anhydrous ammonia : Belgium : GWBB - TWA (8h; mg/m³) : 14
Anhydrous ammonia : Belgium : GWBB - TWA (8h; ppm) : 20
Anhydrous ammonia : Belgium : GWBB - STEL (15min; mg/m³) : 36
Anhydrous ammonia : Belgium : GWBB - STEL (15min; ppm) : 50

8.2. Exposure controls

Personal protection :

- Respiratory protection :

If the occupational exposure limit is exceeded :
Mask with K canister

- Hand protection :

Wear suitable gloves resistant to chemical penetration.
Butyl-rubber protective gloves
Protective gloves made of Viton

- Eye protection :

Safety goggles
Face shield.

- Skin protection :

Impermeable clothing

Collective emergency equipments :

Safety shower
Eye fountain

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

* Physical state :	Liquefied gas
Colour :	Colourless
Odour :	Pungent
Olfactory level :	0.6 at 53 ppm
pH value :	Not applicable
Melting point :	-77.7 °C
Boiling point :	-33.4 °C
Critical temperature :	+132.8 °C
Critical pressure :	114.4 bar
Flash point :	Not applicable
Evaporation rate :	Not determined.
Flammability (solid, gas) :	Flammable gas.
Explosive limits in air :	
Explosion limits - lower :	15.5 % (volume)
Explosion limits - upper :	27 % (volume)
Vapour pressure :	8,70 bar at 20 °C
Vapour density (air = 1) :	0.597
Density :	Liquid product : 638 kg/dm ³ , at 0 °C
Solubility :	
-in water :	Very soluble.
Octanol/water partition coefficient :	0.23 (log POW)
Auto-ignition temperature :	651 °C
Decomposition point :	> 450°C

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9 PHYSICAL AND CHEMICAL PROPERTIES (continued)

Viscosity :	Not applicable
Propriétés explosives :	Not explosive material according to EC criteria. Potential explosion hazard. (see section(s) : 10)
Oxidizing properties :	Non oxidizing material according to EC criteria
9.2. Other information	

10 STABILITY AND REACTIVITY

10.1. Reactivity	Exothermic reaction with water. May explode under specific conditions.
10.2. Chemical stability	Stable at ambient temperature and under normal conditions of use
10.3. Possibility of hazardous reactions	Reacts violently with : - oxides and peroxides Danger of explosion on contact with : - Acetic aldehyde - Hypochlorous acid - halogens (F, Cl, Br, I)
10.4. Conditions to avoid	Contains gas under pressure; may explode if heated.
10.5. Incompatible materials	- acids. - certain plastics, rubbers and coatings - gold, silver, mercury In the presence of water, it attacks: - copper and its alloys. - zinc
10.6. Hazardous decomposition products	On combustion or on thermal decomposition (pyrolysis) releases : Nitrogen Hydrogen

11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects	
Acute toxicity :	Toxic by inhalation. Risks of oedema and respiratory failure LC 50 inhalation (rat) / 2 h : 7.6 mg/l LD 50 oral (rat) : 350 mg/kg
Skin corrosion/irritation :	Corrosive. Causes severe burns
Serious eye damage/irritation :	Causes serious eye burns
Respiratory or skin sensitization :	No information available
Carcinogenicity :	No information available
Germ cell mutagenicity :	No information available
Reproductive toxicity :	No information available
STOT-single exposure :	Irritating to respiratory system.
STOT-repeated exposure :	No information available
Aspiration hazard :	No information available

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12 ECOLOGICAL INFORMATION

12.1. Toxicity	
Effects on the aquatic environment :	Very toxic to aquatic organisms
12.2. Persistence and degradability	No information available
12.3. Bioaccumulative potential	
Octanol/water partition coefficient :	0.23
	Not potentially bioaccumulable.
12.4. Mobility in soil	Not specifically applicable (gas)
12.5. Results of PBT and vPvB assessment	No information available
12.6. Other adverse effects	-

13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods	
WASTE FROM PRODUCT :	
Destruction/Disposal :	Dispose of in accordance with relevant local regulations
CONTAMINATED PACKAGING :	
Destruction/Disposal :	Destroy at an authorised site
NOTE :	The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal

14 TRANSPORT INFORMATION

INTERNATIONAL REGULATIONS :	
14.1. UN number	1005
14.2. UN proper shipping name	AMMONIA, ANHYDROUS
14.3. Transport hazard class(es)	
Rail/road (RID/ADR) :	Class : 2
Sea transport :	Class : 2.3
	Subsidiary risk : 8
Air transport (OACI/IATA) :	Class : 2.3
	Subsidiary risk : 8
Hazard Label(s) :	2.3 + 8



14.4. Packing group	Not applicable
14.5. Environmental hazards	Environmentally hazardous material :YES Marine pollutant : YES
14.6. Special precautions for user	
Rail/road (RID/ADR) :	Classification code : 2TC Hazard identification number : 268 Tunnel restriction code : (C/D)

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14 TRANSPORT INFORMATION

(continued)

Sea transport :

EmS Nr : F-C, S-U

Segregation group : 18 - alkalis

Air transport (OACI/IATA) :

Passenger aircraft : FORBIDDEN

Cargo aircraft Only : FORBIDDEN.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

NOTE :

The above regulatory prescriptions are those valid on the date of publication of this sheet

However, given the possible evolution of transport regulations for hazardous materials, in case the present sheet is dating back to more than 12 months ago, it would be advisable to check their validity with your commercial agency

15 REGULATORY INFORMATION

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

Ensure all national/local regulations are observed.

France :

Classified Installations : N° 1136

Germany :

WGK (Water-endangerment class) : 2

USA :

NFPA Hazard Rating :

- Reactivity : 0

- Flammability : 1

- Health : 3

15.2. Chemical Safety Assessment

No information available

16 OTHER INFORMATION

Further information:

Product for professional use only

For more information regarding the use of this product, please refer to our technical information or contact the sales department in your region

This safety data sheet has been written in conformity with the regulation (UE) 453/2010.

Text of R-Phrases in § 3

R10 : Flammable

R23 : Toxic by inhalation.

R34 : Causes burns.

R50 : Very toxic to aquatic organisms.

Text of H-Phrases in § 3

H221 : Flammable gas.

H314 : Causes severe skin burns and eye damage.

H331 : Toxic if inhaled.

H400 : Very toxic to aquatic life.

* Update :

Modifications are indicated by an asterisk (*)

This sheet complements the technical sheets but does not replace them. The information given is based on our knowledge of the product, at the time of publication. It is given in good faith.

Besides, the attention of the user is drawn to the possible risks incurred by using the product for any other use than that for which it was intended.

In no way does this exempt the user from knowing and applying all the regulations controlling his activity. He alone will take on the responsibility for taking the precautions involved by the use of the product.

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The aim of all the mandatory regulations mentioned is just to help the user to fulfil his obligations regarding the use of hazardous products.

This information must not be considered exhaustive. It does not exempt the user from ensuring that other obligations than those mentioned could apply, related to the storage and use of the product, this being his sole responsibility.

End of document

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