



SAFETY DATA SHEET

Page : 1

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3



2.3 : Toxic gases



8 : Corrosive substances



9E : Environmentally hazardous substances

Danger

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

1.1. Product identifier

Trade name : Anhydrous ammonia
SDS Nr : SDS_NH3
Chemical description : Anhydrous ammonia
CAS No : 7664-41-7
EC No : 231-635-3
Index No : 007-001-00-5
Registration-No. : 01-2119488876-14-
Chemical formula : NH3

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use. Use for metal treatment. Use as refrigerant. Test gas/Calibration gas. Laboratory use. Chemical reaction / Synthesis. Use for manufacture of electronic/photovoltaic components. Contact supplier for more information on uses.
Uses advised against : Consumer use.

1.3. Details of the supplier of the safety data sheet

Company identification : BUZWAIR INDUSTRIAL GASES FACTORIES
PO Box 319
Doha Qatar

1.4. Emergency telephone number

Emergency telephone number : +974 4451 6976

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)

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

Classification EC 67/548 or EC 1999/45

: R10
T; R23
C; R34
N; R50



SAFETY DATA SHEET

Page : 2

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 2. Hazards identification (continued)

2.2. Label elements

Labelling Regulation EC 1272/2008 (CLP)

Hazard pictograms



Hazard pictograms code

: GHS06 - GHS05 - GHS04 - GHS09

Signal word

: 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.

Supplemental hazard information

: EUH071 - Corrosive to respiratory tract.

Precautionary statements

- Prevention

: P260 - Do not breathe gas, vapours.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 P273 - Avoid release to the environment.

- Response

: P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention.
 P305+P351+P338+P315 - IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention.
 P303+P361+P353+P315 - IF ON SKIN : (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention.
 P377 - Leaking gas fire : Do not extinguish, unless leak can be stopped safely.
 P381 - Eliminate all ignition sources if safe to do so.
 P403 - Store in a well-ventilated place.
 P405 - Store locked up.

- Storage

2.3. Other hazards

: Contact with liquid may cause cold burns/frostbite.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

Substance.

| Substance name | Contents | CAS No EC No Index No Registration no | Classification(DSD) | Classification(CLP) |
|-------------------|----------|---|-----------------------------------|--|
| Anhydrous ammonia | : 100 % | 7664-41-7 231-635-3 007-001-00-5 01-2119488876-14- | R10 T; R23 C; R34 N; R50 | Acute Tox. 3 (H331) Skin Corr. 1B (H314) Flam. Gas 2 (H221) Press. Gas Liquefied (H280) Aquatic Acute 1 (H400) |

Contains no other components or impurities which will influence the classification of the product.

* 1: Listed in Annex IV / V REACH, exempted from registration.

* 2: Registration deadline not expired.

* 3: Registration not required: Substance manufactured or imported < 1t/y.

Full text of R-phrases see section 16. Full text of H-statements see section 16.



SAFETY DATA SHEET

Page : 3

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 4. First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- Skin contact : Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

- : May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product. Prolonged exposure to small concentrations may result in pulmonary oedema. Refer to section 11.

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

- : Obtain medical assistance.
Treat with corticosteroid spray as soon as possible after inhalation.

SECTION 5. Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Foam.
Carbon dioxide.
Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Nitric oxide/nitrogen dioxide.

5.3. Advice for fire-fighters

- Specific methods : Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
If possible, stop flow of product.
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from Use water spray or fog to knock down fire fumes if possible.
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- : Ensure adequate air ventilation.
Evacuate area.
Try to stop release.
Monitor concentration of released product.
Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.

6.2. Environmental precautions

- : Try to stop release.
Reduce vapour with fog or fine water spray.



SAFETY DATA SHEET

Page : 4

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 6. Accidental release measures (continued)

6.3. Methods and material for containment and cleaning up

- : Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).
Wash contaminated equipment or sites of leaks with copious quantities of water.
Hose down area with water.
Ventilate area.

6.4. Reference to other sections

- : See also sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe use of the product

- : Take precautionary measures against static discharge.
Keep away from ignition sources (including static discharges).
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Avoid exposure, obtain special instructions before use.
Do not smoke while handling product.
Avoid suck back of water, acid and alkalis.
Only experienced and properly instructed persons should handle gases under pressure.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
Installation of a cross purge assembly between the cylinder and the regulator is recommended.
Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service.
Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.
Consider the use of only non-sparking tools.
The substance must be handled in accordance with good industrial hygiene and safety procedures.
Consider pressure relief device(s) in gas installations.

Safe handling of the gas receptacle

- : Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.
Close container valve after each use and when empty, even if still connected to equipment.
Never attempt to repair or modify container valves or safety relief devices.
Damaged valves should be reported immediately to the supplier.
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
Keep container valve outlets clean and free from contaminants particularly oil and water.
Never attempt to transfer gases from one cylinder/container to another.
Never use direct flame or electrical heating devices to raise the pressure of a container.
Protect cylinders from physical damage; do not drag, roll, slide or drop.

7.2. Conditions for safe storage, including any incompatibilities

- : Keep container below 50°C in a well ventilated place.
Segregate from oxidant gases and other oxidants in store. Stored containers should be periodically checked for general condition and leakage.
Observe all regulations and local requirements regarding storage of containers.
Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.



SAFETY DATA SHEET

Page : 5

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 7. Handling and storage (continued)

7.3. Specific end use(s)

: None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Anhydrous ammonia

: TLV[©] -TWA [ppm] : 25
: TLV[©] -STEL [ppm] : 35
: ILV (EU) - 8 H - [mg/m³] : 14
: ILV (EU) - 8 H - [ppm] : 20
: ILV (EU) - 15 min - [mg/m³] : 36
: ILV (EU) - 15 min - [ppm] : 50
: LTEL - UK [mg/m³] : 18
: LTEL - UK [ppm] : 25
: STEL - UK [mg/m³] : 25
: STEL - UK [ppm] : 35
: VLE - France [mg/m³] : 14
: VLE - France [ppm] : 20
: VME - France [mg/m³] : 7
: VME - France [ppm] : 10
: AGW (8h) - Germany [mg/m³] TRGS 900 : 14
: AGW (8h) - Germany [ppm] TRGS 900 : 20
: Exceeding factor AGW - Germany TRGS 900 : 2
: MAK (AU) Tagesmittelwert (ml/m³) : 20
: MAK (AU) Tagesmittelwert (mg/m³) : 14
: MAK (AU) Kurzzeitwerte (ml/m³) : 50
: MAK (AU) Kurzzeitwerte (mg/m³) : 36
: VLA-ED - Spain [ppm] : 20
: VLA-ED - Spain [mg/m³] : 14
: VLA-EC - Spain [ppm] : 50
: VLA-EC - Spain [mg/m³] : 36
: NGV - [ppm] : 25
: NGV - [mg/m³] : 18
: TGV - [mg/m³] : 35
: TGV - [ppm] : 50
: Grænserværdier (DK) (ppm) : 20
: HTP-värden (FI) - 8 H - [ppm] : 20
: HTP-värden (FI) - 8 H - [mg/m³] : 14
: Tentativ Grænserværdi (DK) (ppm) : 36
: HTP-värden - 15min - [ppm] : 50
: Grænserværdier (DK) mg/m³ : 14
: HTP-värden - 15min - [mg/m³] : 36
: Grenseverdi (NO) 8 timers [ppm] : 25
: Grenseverdi (NO) 8 timers [mg/m³] : 18
: TGG 8 uur (NL) (mg/m³) : 14
: TGG 15 min (NL) (mg/m³) : 36
: VLE-CH [mg/m³] : 28



SAFETY DATA SHEET

Page : 6

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 8. Exposure controls/personal protection (continued)

- : VLE-CH [ppm] : 40
- : VME-CH [mg/m³] : 14
- : VME-CH [ppm] : 20
- : 8-Hour TWA (PL) (NDS) (mg/m³) : 14
- : 15-Minute STEL (PL)(NDSch) (mg/m³) : 28
- : Valori Limite di Soglia (IT) 8 ore [ppm] : 20
- : Valori Limite di Soglia (IT) 8 ore [mg/m³] : 14
- : Valori Limite di Soglia (IT) Breve Term [ppm] : 50
- : Valori Limite di Soglia (IT) Breve Termine [mg/m³] : 36
- : TLV-TWA (Belgium) (ppm) : 20
- : TWA BE 8h [mg/m³] : 14
- : TLV-STEL (Belgium) (ppm) : 50
- : STEL BE 15min [mg/m³] : 36
- : Value 8h (CZ) [ppm] : 20.1
- : Value 8h (CZ) [mg/m³] : 14
- : Value 15min. (CZ) [ppm] : 51.7
- : Value 15min. (CZ) [mg/m³] : 36
- : ÁK-érték (HU) 8h [mg/m³] : 14
- : CK-érték (HU) 15min [mg/m³] : 36
- : Valoare limita maxima (RO) 8 ore [mg/m³] : 14
- : Valoare limita maxima (RO) 8 ore [ppm] : 20
- : Valoare limita maxima (RO) Termen scurt 15min [mg/m³] : 36
- : Valoare limita maxima (RO) Termen scurt 15min [ppm] : 50
- : TWA LT 8h [ppm] : 20
- : TWA LT 8h [mg/m³] : 14
- : STEL LT 15min [ppm] : 50
- : STEL LT 15min [mg/m³] : 36
- : TWA BG 8h [mg/m³] : 14
- : STEL BG 15min [mg/m³] : 36
- : TWA EE 8h [ppm] : 20
- : TWA EE 8h [mg/m³] : 14
- : STEL EE 15min [ppm] : 50
- : STEL EE 15min [mg/m³] : 36
- : TWA LV 8h [ppm] : 20
- : TWA LV 8h [mg/m³] : 14
- : STEL LV 15min [ppm] : 50
- : STEL LV 15min [mg/m³] : 36
- : TWA MT 8h [ppm] : 20
- : TWA MT 8h [mg/m³] : 14
- : STEL MT 15min [ppm] : 50
- : STEL MT 15min [mg/m³] : 36
- : STEL CY 15min [mg/m³] : 36
- : TWA CY 8h [ppm] : 20
- : TWA CY 8h [mg/m³] : 14
- : STEL CY 15min [ppm] : 50
- : TWA GR 8h [ppm] : 50
- : TWA GR 8h [mg/m³] : 35
- : STEL GR 15min [ppm] : 50
- : STEL GR 15min [mg/m³] : 35



SAFETY DATA SHEET

Page : 7

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 8. Exposure controls/personal protection (continued)

- : STEL-POR 15min [ppm] : 35
- : TWA-POR 8h [ppm] : 25
- : OEL (IE)-(8-hour reference period) [ppm] : 20
- : OEL (IE)-(15min reference period) [ppm] : 50
- : OEL (IE)-LTEL [mg/m³] : 14
- : OEL (IE)-(15min reference period) [mg/m³] : 36
- : TWA SL 8h [ppm] : 20
- : TWA SL 8h [mg/m³] : 14
- : TWA IS 8h [ppm] : 20
- : TWA IS 8h [mg/m³] : 14
- : Pakgildi [ppm] : 50
- : STEL IS 15min [mg/m³] : 36
- : Value 8h (LU) [ppm] : 20
- : Value 8h (LU) [mg/m³] : 14
- : Value 15min (LU) [ppm] : 50
- : Value 15min (LU) [mg/m³] : 36
- : Value 8h (SK) [ppm] : 20
- : Value 8h (SK) [mg/m³] : 14

DNEL: Derived no effect level (Workers)

Anhydrous ammonia

- : Inhalation-short term (local) [mg/m³] : 36
- : Inhalation-long term (local) [mg/m³] : 14
- : Dermal-short term (systemic) [mg/kg bw d] : 6.8
- : Dermal-long term (systemic) [mg/kg bw d] : 6.8

PNEC: Predicted no effect concentration

Anhydrous ammonia

- : Aqua (freshwater) [mg/l] : 0.0011
- : Aqua (marine water) [mg/l] : 0.0011

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation.
- Alarm detectors should be used when toxic gases may be released.
- Product to be handled in a closed system.
- Preferably use only permanent leak-tight installations (e.g. welded pipes).
- Systems under pressure should be regularly checked for leakages.
- Ensure exposure is below occupational exposure limits (where available).
- Consider work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment

- : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
- The following recommendations should be considered:
- PPE compliant to the recommended EN/ISO standards should be selected.
- Protect eyes, face and skin from liquid splashes.

• Eye/face protection

- : Wear safety glasses with side shields.
- Wear goggles and a face shield when transfilling or breaking transfer connections.
- Standard EN 166 - Personal eye-protection.
- Provide readily accessible eye wash stations and safety showers.

• Skin protection

- Hand protection

- : Wear working gloves when handling gas containers.
- Standard EN 388 - Protective gloves against mechanical risk.
- Wear chemically resistant protective gloves.
- Standard EN 374 - Protective gloves against chemicals.
- Permeation time: minimum >30min short term exposure; material / thickness [mm]: Chloroprene rubber (CR) / 0,5
- Permeation time: minimum >480min long term exposure; material / thickness [mm]: Butyl rubber (IIR) / 0,7
- The breakthrough time of the selected gloves must be greater than the intended use period.
- Consult glove manufacturer's product information on material suitability and material thickness.



SAFETY DATA SHEET

Page : 8

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 8. Exposure controls/personal protection (continued)

- Other : Consider the use of flame resistant anti-static safety clothing.
Standard EN ISO 14116 - Limited flame spread materials.
Standard EN ISO 1149-5 - Protective clothing: Electrostatic properties.
Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
Keep suitable chemically resistant protective clothing readily available for emergency use.
Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.
 - Respiratory protection : Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.
Use gas filters and full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.
Recommended: Filter K (green).
Consult respiratory device supplier's product information for the selection of the appropriate device.
Gas filters do not protect against oxygen deficiency.
Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.
Keep self contained breathing apparatus readily available for emergency use.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.
 - Thermal hazards : None necessary.
- 8.2.3. Environmental exposure controls** : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Appearance
- Physical state at 20°C / 101.3kPa : Gas.
- Colour : Colourless.
- Odour : Ammoniacal.
- Odour threshold : Odour threshold is subjective and inadequate to warn for overexposure.
- pH value : If dissolved in water pH-value will be affected.
- Molar mass [g/mol] : 17
- Melting point [°C] : -77.7
- Boiling point [°C] : -33
- Critical temperature [°C] : 132
- Flash point [°C] : Not applicable for gases and gas-mixtures.
- Evaporation rate (ether=1) : Not applicable for gases and gas-mixtures.
- Flammability range [vol% in air] : 15.4 - 33.6
- Vapour pressure [20°C] : 8.6 bar
- Relative density, gas (air=1) : 0.6
- Relative density, liquid (water=1) : 0.7
- Solubility in water [mg/l] : 517000
- Partition coefficient n-octanol/water [log Kow] : Not applicable for inorganic gases.
- Auto-ignition temperature [°C] : 630
- Viscosity at 20°C [mPa.s] : Not applicable.
- Explosive Properties : Not applicable.
- Oxidising Properties : None.

9.2. Other information

- Other data : None.



SAFETY DATA SHEET

Page : 9

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 9. Physical and chemical properties (continued)

SECTION 10. Stability and reactivity

10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

: Stable under normal conditions.

10.3. Possibility of hazardous reactions

: Can form explosive mixture with air.
May react violently with oxidants.

10.4. Conditions to avoid

: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

10.5. Incompatible materials

: Reacts with water to form corrosive alkalis.
May react violently with acids.
Air, Oxidiser.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------------|---|
| Acute toxicity | : Inhalation of large amounts leads to bronchospasm, laryngeal oedema and pseudomembrane formation. |
| Rat inhalation LC50 [ppm/4h] | : 2000 |
| Skin corrosion/irritation | : May cause inflammation of the skin. |
| Serious eye damage/irritation | : Irritation to eyes. |
| Respiratory or skin sensitisation | : No known effects from this product. |
| Carcinogenicity | : No known effects from this product. |
| Germ cell mutagenicity | : No known effects from this product. |
| Reproductive toxicity | : No known effects from this product. |
| STOT-single exposure | : May cause inflammation of the respiratory system. |
| STOT-repeated exposure | : No known effects from this product. |
| Aspiration hazard | : Not applicable for gases and gas-mixtures. |

SECTION 12. Ecological information

12.1. Toxicity

| | |
|---------------------------------|-------------------------------|
| | : Very toxic to aquatic life. |
| EC50 48h - Daphnia magna [mg/l] | : 101 |
| EC50 72h Algae [mg/l] | : No data available. |
| LC50-96 h - fish [mg/l] | : 0.89 |

12.2. Persistence and degradability

: The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential



SAFETY DATA SHEET

Page : 10

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 12. Ecological information (continued)

: Not expected to bioaccumulate due to the low log Kow (log Kow < 4).
Refer to section 9.

12.4. Mobility in soil

: Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Results of PBT and vPvB assessment

: Not classified as PBT or vPvB.

12.6. Other adverse effects

: May cause pH changes in aqueous ecological systems.

Effect on ozone layer

: None.

Effect on the global warming

: No known effects from this product.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

: Must not be discharged to atmosphere.
Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere.
Gas may be scrubbed in sulphuric acid solution.
Gas may be scrubbed in water.
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
List of hazardous wastes : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

13.2. Additional information

: None.

SECTION 14. Transport information

UN number : 1005

Labelling ADR, IMDG, IATA



: 8 : Corrosive substances
2.3 : Toxic gases
9E : Environmentally hazardous substances

Land transport (ADR/RID)

H.I. nr : 268

UN proper shipping name : AMMONIA, ANHYDROUS

Transport hazard class(es) : 2

Classification code : 2 TC

Packing Instruction(s) : P200

Tunnel Restriction : C/D : Passage forbidden through tunnels of category C when carried in tanks. Passage forbidden through tunnels of category D and E.

Environmental hazards : Environmentally hazardous substance / mixture.

Sea transport (IMDG)

Proper shipping name : AMMONIA, ANHYDROUS

Class : 2.3

Emergency Schedule (EmS) - Fire : F-C



SAFETY DATA SHEET

Page : 11

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 14. Transport information (continued)

Emergency Schedule (EmS) - Spillage : S-U
Packing instruction : P200
IMDG-Marine pollutant : Yes

Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : AMMONIA, ANHYDROUS
Class : 2.3
Passenger and Cargo Aircraft : DO NOT LOAD IN PASSENGER AIRCRAFT.
Cargo Aircraft only : FORBIDDEN.

Special precautions for user

: - Ensure there is adequate ventilation.
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
Before transporting product containers:
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

SECTION 15. Regulatory information

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

EU legislation

Restrictions on use : None.
Seveso directive 96/82/EC : Listed.

National legislation

National legislation : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

: CSA has been carried out.

SECTION 16. Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.
Training advice : Users of breathing apparatus must be trained.
Ensure operators understand the toxicity hazard.
List of full text of R-phrases in section 3. : R10 : Flammable.
R23 : Toxic by inhalation.
R34 : Causes burns.
R50 : Very toxic to aquatic organisms.
List of full text of H-statements in section 3. : 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.
Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.



SAFETY DATA SHEET

Page : 12

Revised edition no : 0

Date : 6 / 12 / 2016

Supersedes : 0 / 0 / 0

Anhydrous ammonia

SDS_NH3

SECTION 16. Other information (continued)

End of document