Safety Data Sheet

According To Regulation (EC) No 1907/2006 (REACH)

AMMONIA ANHYDROUS

Version:	*3.0*	*Preparation Date :*	*11.1.2020*
Form No:	*100004*	*Revision Date:*	*8.5.2020*

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name	**AMMONIA ANHYDROUS** **AMMONIA WITHOUT WATER CONTENT**
SDS[1] No	1000004
CAS No	7664-41-7
EINECS No	231-635-3
Chemical Name	Ammonia, anhydrous
Molecular Formula	H_3N
Structural Formula	
Description	The product is an inorganic susbstance

1.2 Relevant Identified Uses Of The Product And Uses Advised Against

Relevant Identified Uses	Raw material for primarily production of nitrogenous fertilizer and for the products containing nitrogen
Uses Advised Against	See chapter 16 for a general overview

1.3 Details Of The Supplier Of The Safety Data Sheet

Supplier (Manufacturer)	**AMON KİMYA ve MAKİNA SAN.TİC.LTD.ŞTİ.**
Address – Factory	Hürriyet Mah. Kümeevleri No:245/2 Erzin/Hatay
Telephone	+ 90 326 617 26 17
Fax	+ 90 262 617 36 17
E-mail	info@amonkimya.com.tr

1.4 Information Providing Authority About Safety Data Sheet

Necmettin ÖZSÜREN- nozsuren@amonkimya.com.tr

1.5 Emergency Telephone Number

Company Emergency	+ 90 532 447 87 06

2. HAZARDS IDENTIFICATION

2.1 Classification Of The Product

2.1.1 Classification According to Regulation (EC) No 1272/2008

- This substance is classified as hazardous according to regulation (EC) 1272/2008 [CLP].
- Press.Gas
- Flam. Gas 2; H221
- Skin Corr. 1B;H314
- Acute Tox. 3; H331
- Aquatic Acute 1;H400

2.2 Label elements

2.2.1. Labeling According to Regulation (EC) No 1272/2008 [CLP²/GHS³]

Product Identifier

Hazard Component for Labeling

- *Ammonia, anhydrous*

Hazard Pictograms

.

Signal Word

- *DANGER*

Hazard Statements

H221	*Flammable gas.*
H314	*Causes severe skin burns and eye damage.*
H331	*Toxic if inhaled.*
H400	*Very toxic to aquatic life.*

Precautionary Statements

General

None

Prevention

P210	*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*
P261	*Avoid breathing dust/fumes/gas/mist/vapours/spray.*
P273	*Avoid release to the environment.*
P280	*Wear protective gloves/protective clothing/eye protection/face protection.*

Response

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*

Storage

P403	*Store in a well ventilated place.*
P405	*Store locked up.*

Disposal

P501	*Dispose of contents/container in accordance with local/regional/ national/international regulation*

Supplemental Hazard Information (EU) Statements

No data available.

2.3 Hazard Identification

2.3.1. Skin Contact

Liquid ammonia splashes can cause severe cold burns on the skin. Moist ammonia vapors irritate the skin

2.3.2. Eye Contact

Liquid ammonia splashes can cause permanent damages on eyes that cannot be seen on the first few days. Ammonia vapors can irritate the eyes and cause watering in the eyes. It can damage severely at high level.

2.3.3. Ingestion

It causes severe irritation and damage on esophagus stomach and intestines.

2.3.4. Inhalation

Odor of ammonia is noticed at the interval of 5-25 ppm. It can cause irritation in case of exposure in the concentrations ranging between 50-100 ppm for a long time. It causes irritation on the eyes. In nose, throat and on upper respiratory system in case of inhalation for a long time between 400-700 ppm. Exposure to high concentrations above 1000 ppm for a long time can cause severe irritation on the eyes and or the upper respiratory system. In the atmospheres above 2000 ppm can causes severe damages on the lungs in a short time and can be mortal within 48 hours and may cause to death.
When exposed frequently at high concentrations above the limits due to the occupational and job activities, it can causes permanent upper respiratory system damages..

2.3.5. Long term effects

No adverse effects approved upon exposures lower than the occupational exposure limits.

2.3.6. Adverse Environmental Effects

Aquatic toxicity: Very toxic to aquatic organisms.
Ammonia is readily oxidized to nitrite which is also very toxic to fish.
Terrestrial toxicity: Expected to be harmful to terrestrial species.

2.4. Additional Information

· None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Description Of The Substance

NAME	EINECS[4] NO	CAS[5] NO	CONTENT (%)	CLASSIFICATION CLP
Ammonia	231-635-3	7664-41-7	> % 99,98	Press.Gas Flam. Gas 2; H221 Skin Corr. 1B;H314 Acute Tox. 3; H331 Aquatic Acute 1;H400

3.2 Specific Concentration Limits: None
M-Factors: None

3.3 Notes

Note U: When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

3.4 Additional information

- None

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General information

- Wear appropriate protective equipment during first aid.
- Speed is obligatory and necessary.
- Remove immediately the allocated person from the exposed area in order not to be affected more.
- Apply first aid response immediately and provide medical treatment.
- Show this safety data sheet to the doctor in attendance..

4.1.2 Following inhalation

- Remove victim from area of exposure - avoid becoming a casualty.
- Remove contaminated clothing and loosen remaining clothing.
- Allow patient to assume most comfortable position and keep warm.
- Keep at rest until fully recovered.
- If patient finds breathing difficult and develops a bluish discoloration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask.
- Apply artificial respiration if patient is not breathing.
- Seek immediate medical advice.

4.1.3 Following skin contact

- Moisten and wash plenty of water.
- In case of cold burn clothes may be stick to the skin when frozen wound inflammation can occur.
- Melt the ices by using warm water carefully.
- Remove the cloth and wash affected area.
- Provide medical treatment immediately.
- If spilt on large areas of skin or hair, immediately drench with running water and remove clothing.
- Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre (UZEM) or a doctor.

4.1.4 Following eye contact

- Immediately wash in and around the eye area with large amounts of water for at least 15 minutes or eye wash solution (5% boric acid solution).
- Eyelids to be held apart.
- Remove clothing if contaminated and wash skin.
- Urgently seek medical assistance.
- Transport to hospital or medical centre.

4.1.5 Following ingestion

- Immediately rinse mouth with water.
- If swallowed, do NOT induce vomiting.
- Give a glass of water.
- Get to a doctor or hospital quickly.

4.1.6 Self-protection of the first aider

- Protect skin and eyes.
- Wear protective cloths.

4.1.7 Notes for the doctor

- Treat symptomatically.
- Delayed pulmonary oedema may result.
- Following severe exposure, the patient should be kept under medical supervision for at least 48 hours.
- Can cause corneal burns.
- Keep the injured under health care for bronchitis, trachea and lung edemas.
- Aggravating harmful effects can take place

5. FIRE-FIGHTING MEASURES

5.1 General Information and Flammable Properties

- This product is highly flammable.
- Combustible gas.
- May form flammable mixtures in air.
- If ammonia and air mixture is within the limits (16-27 %) and if they are set on fire they cause explosion.
- Cold, intensive ammonia cloud can decrease the visual power.
- Avoid all ignition sources.
- All potential sources of ignition (open flames, pilot lights, furnaces, spark producing switches and electrical equipment etc) must be eliminated both in and near the work area. Do NOT smoke.
- Flammable concentrations of ammonia gas can accumulate in the vapour space of storage containers/vessels.
- Caution should be exercised when opening.

5.2 Extinguishing media:

- Water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder, dust).
- Water spray can be used to bring down the vapour but should not be sprayed on pools of liquid ammonia.

5.3 Unsuitable extinguishing media

- Solid streams of water may be ineffective.

5.4 Special hazards arising from the product

Hazardous combustion products

- Ammonia: The main products of combustion in air, at or above 780 °C, are nitrogen and water with small amounts of nitrogen dioxide and ammonium nitrate.

- *Ammonia decomposes into flammable hydrogen gas at approximately 450 °C.*

5.5 Advice for fire-fighters

- *Fire-fighters to wear full body protective clothing and self-contained breathing apparatus. As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA /NIOSH approved or equivalent) and full protective gear.*

5.6 Additional information

- *The presence of oil or other combustible material will increase the fire hazard.*
- *Fatalities have occurred as a result of the explosive nature of the ammonia gas.*
- *If involved in a fire, keep containers cool with water spray.*
- *If safe to do so, remove containers from path of fire. Consider evacuation.*

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- *Wear ammonia cloth provides whole body protection and protective equipment to prevent skin and eye contamination and the inhalation of vapors.*
- *Shut off all possible sources of ignition.*
- *Avoid breathing in vapors.*
- *Work up wind or increase ventilation.*
- *Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.*
- *Clear area of all unprotected personnel.*
- *Refer to protective measures listed in section 7 and 8.*

6.2 Environmental precautions

- *Prevent further leakage or spillage if safe to do so.*
- *Stop leak if safe to do so.*
- *Do not let product enter drains.*
- *Discharge into the environment must be avoided.*
- *If contamination of sewers or waterways has occurred advise emergency services or local regulatory body.*
- *Spillages or uncontrolled discharges into watercourses must be alerted to the Environmental Agency or other appropriate regulatory body.*
- *See section 12*

6.3 Methods and material for containment and cleaning up

6.3.1 For containment

- *Isolate hazarded area.*
- *Keep unnecessary and unprotected personnel from entering.*
- *Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container or collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.*

6.3.2 For cleaning up

- *Control personal contact by using protective equipment.*
- *For a small gas leak, increase ventilation and allow gas to vent to a safe area.*

- For larger gas leaks. Use fire hoses equipped with fog nozzles to disperse gas down-wind.
- Do NOT spray water directly on the leak or ammonia container.
- Isolate hazarded area.

6.3.3 Other information

- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

- Dispose of contaminated material as waste in accordance with section 13.
- See Section 13.

7. HANDLING AND STORAGE

7.1.1 Precautions for safe handling

7.1.2 Protective measures

Personal preventions

- Do not breathe vapour.
- Avoid inhalation ammonia gas in case of eye and skin contact.
- Avoid contact with skin and eyes.
- Use personal protection equipment if there is risk of leakage or spillage.

Fire preventions

- Keep away from sources of ignition - No smoking.
- Take measures to prevent the buildup of electrostatic charge.
- Remove all sources of ignition.
- Beware of vapors accumulating to form explosive concentrationsSee section 5.

Aerosol and dust generation preventions:

- Check the amounts in atmosphere where the people work in accordance with the professional exposure limits.

Environmental precautions:

- Ensure adequate ventilation.
- Vapors can accumulate in low areas.
- Dispose of waste material according to local, state and federal regulations.

7.1.3 Advice on general occupational hygiene

- Use good occupational work practice.
- Always wash hands with soap and water after handling.
- Working areas must be arranged in such a manner that they can be cleaned at all times.
- Eating and drinking is prohibitied in the working area
- Comply with the health and safety at work laws.
- Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

- Store in cool place and out of direct sunlight.
- Store in well ventilated area.
- Keep containers securely sealed and protected against physical damage.
- Check cylinders regularly for leaks.

- *The transport of liquefied ammonia in a tank or bulk container made of quenched and tempered steel is prohibited unless the liquefied ammonia contains not less than 0.2% water mass.*
- *May be an explosion hazard, especially in confined spaces.*
- *Ventilation systems, temperature and humidity controls must be performed regularly.*
- *Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.*
- *Store in original containers.*
- *Keep containers securely sealed when not in use.*
- *Avoid physical damage to containers.*

Incompatibly

- *Store away from oxidizing agents, boron halides, acids, acid anhydrides, acid chlorides, halogens (e.g. chlorine), interhalogens, heavy metals and their salts, ethylene oxide, hypochlorous acid and acetaldehyde.*

7.1 Advice on common storage

- *See also instructions on the label.*
- *Store in a cool, dry, well-ventilated area.*
- *Keep away from food, drink and animal feeding stuffs.*
- *Store away from incompatible materials and foodstuff containers.*
- *Protect containers against physical damage.*

7.2 Specific precautions on storage

- *Empty containers may be flammable do not use for other purposes.*
- *Do not cutting, drilling, grinding, welding or the like operations near the packages.*

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Preventive industrial and medical examinations must be carried out according to the application area.

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

8.1.1 Occupational exposure limits

Substance Name	*EINECs No*	*CAS No.*	*İçerik %*	*Occupational exposure limit value*					*Kaynak*
				Long Term TWA[6] (8 Hr.)		*Short Term STEL [7](15 Min)*			
				mg/m3[8]	*mg/m3[9]*	*mg/m[3]*	*ppm*		
Ammonia	*231-635-3*	*7664-41-7*	*> % 99,98*	*17*	*25*	*24*	*35*	*-*	*ACGIH[10]*

- *According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers. These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.*

- A time weighted average (TWA) has been established for Ammonia, [Ammonia, anhydrous] [7664-41-7] (Work safe Turkey) of 14 mg/m³, (20 ppm). The corresponding STEL level is 36 mg/m³, (50 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL.
- The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

8.2 Exposure controls

Adequate ventilation should be used during processing

8.2.1 Appropriate engineering controls:

- Provide local ventilation equipment to the suitable place.
- Provide safety shower and face washing showers where any eye or skin contact is likely.
- Ensure ventilation is adequate to maintain air concentrations below Exposure Standards.
- Use with local exhaust ventilation or while wearing air supplied mask.
- Ammonia gas is generally lighter than air and will disperse under normal conditions.
- However, when ammonia liquid contacts air, the gas produced may be heavier than air.
- Prevent concentration in hollows or sumps.
- Do NOT enter confined spaces where vapour may have collected.
- An asphyxiant gas which can lead to the reduction of the oxygen concentration by displacement or dilution.
- The minimum oxygen content in air should be 18% by volume under normal atmospheric pressure
- See Section 7

8.2.2 Personal protection equipment

8.2.2.1 Eye / Face protection:

- Tightly fitting safety goggles.
- Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

8.2.2.2 Skin protection

Hand protection

- Handle with gloves.
- Gloves must be inspected prior to use.
- Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.
- Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
- The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
- Body protection

- Complete ammonia suit protecting against ammonia, flame retardant antistatic protective clothing, and the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Other protection

- Handle in accordance with good industrial hygiene and safety practice.

- *Wash hands before breaks and at the end of workday.*
- *Wash thoroughly after using product.*
- *Wash contaminated clothing.*
- *Wash hands before eating or drinking.*

8.2.2.3 Respiratory protection

- *Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.*
- *Use respirators and components tested and approved under appropriate government Standards such as NIOSH (US) or CEN (EU)*
- *Use NIOSH/MSHA approved respiratory protection (air purifying or air supplying) when concentrations are above exposure limit value.*
- *A respiratory protection program that meets OSHA 29 CFR part 1910.134 and*
- *ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use a respirator.*

8.2.3 Environmental exposure controls

- *Legislation for the protection of the environment must be met in full.*

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance

Form/Physical state	*Gas*
Color	*Colorless gas at atmosphere heat*
Odor	*Sharp, sultry* *Intensely irritating ammoniacal odor*

	Value
pH (1% Solution) (25 °C)	*11,70*
Melting/Freezing point/range (°C)	*-77,7*
Boiling point/range (°C) 101,3 kPa	*-33,40*
Vapour pressure	*101,3 kPa (25 °C)* *6.402 hPa (15,50 °C)* *8.866 hPa (21 °C)*
Flash Point (°C)closed cup	*132*
Lower explosion limit (as volume and in air)	*16 %*
Upper explosion limit (as volume and in air)	*27 %*
Ignition temperature (°C)	*651*
Flame Point (°C)	*No data available*
Vapour density (air=1)	*0,6*
Liquid Density (g/cm3) at 0 °C and 101,3 kPa	*0,6386*
Gas density (g/l) at 0 °C and 101,3 kPa	*0,7714*
Decomposition temperature (°C)	*No data available*
Vaporization rate	*No data available*
Solubility in water	*529 (Soluble at high rate)*

Solubility in organic solvents	*Alcohol, acetone, chloroform*
Viscosity (mm^2/s) @40°C Kinematic	*No data available*
Partition coefficient n-Octanol/Water (log Po/w)	*-1,14*
Explosive Property	*None*
Oxidation Property	*No Oxidation Property*

***Note**: The above features were determined according to prescribed methods at the Classification, Packaging and Labeling of Hazardous. Substances Regulation Section A-3 or a method comparable to the other.*

10. STABILITY AND REACTIVITY

10.1 Reactivity

10.2 Chemical stability

- *It is thermally stable under designed storage conditions and reaction conditions it causes vaporization of liquid if it is heated.(See section 7.)*

10.3 Possibility of hazardous reactions

- *Ammonia dissolves exothermically in water.*
- *Can react explosively with chlorine and hypochlorites or other strong oxidizing agents.*
- *Corrosive to copper, zinc and their alloys.*
- *Critical pressure = 11.4mPa.*
- *It forms compounds sensitive to shock by reacting with mercury and silver oxide.*

10.4 Conditions to avoid:

- *Heat, flames and sparks. Extremes of temperature and direct sunlight.*

10.5 Incompatible materials:

- *Oxidizing agents, Iron, Zinc, Copper, Silver/silver oxides, Cadmium/cadmium oxides, Alcohols, acids, Halogens, Aldehydes*

10.6 Hazardous decomposition products:

- *Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)*

10.7 Hazardous polymerization:

- *Will not occur.*

11. TOXICOLOGICAL INFORMATION

11.1 General Information

- *No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label.*
- *Symptoms or effects that may arise if the product is mishandled and overexposure occurs are: please refer to health Effects Section for acute effects.*
- *Ammonia: Lowest Published Lethal Concentration (human) = 5,000 ppm/5 min.*
- *Irritation of the respiratory tract and conjunctivae was found in workers inhaling 100 ppm ammonia and 20 ppm caused complaints and discomfort to unacclimatitised workers.*
- *Studies on the effect on man of exposures in the 5-50 ppm range are few, however general field experience in a large number of workers exposed to ammonia from*

blueprinting and copying machined indicates a maximum acceptable concentration without severe complaints of 20-25 ppm.

11.2 Acute toxicity

Oral LD50: 350 mg/kg (rat)
Dermal; LD50: No data avaible
Inhalation; LC50: 2000 mg/L (rat) (4 h)

11.3 Skin corrosion/irritation and Eye damage/irritation:

- *It is irritant on skin.(human)*
- *It is severly irritant on eyes. (human)*

11.4 CMR effects (Carcinogenity) :

- *No component of this product at levels greater than or equal to 0.1 % is identified as a carcinogen by ACGIH, the International Agency for Research on Cancer (IARC), the European Commission (EC), or the National Occupational Health and Safety Commission.*

11.5 CMR effects (Mutagenicity and Toxicity for reproduction) :

There is no effects of mutagenicity and reproductive toxicity

11.6 Other Toxicological Effects:

Allergic Effects	*No data available*
Effects on Repeated Doses Chronic Exposures	*Chronic exposure to ammonia may cause chemical pneumonitis and kidney damage.*
Sensitization	*Not a sensitization substance*
Developmental Toxicity (Teratogenicity)	*No data available*
Fertility	*No data available*

11.7 STOT-single/repeated exposures:

STOT-single exposure	*Causes damage to organs (respiratory system, kidneys, systemic toxicity / loss);* *Causes irritation to the respiratory system; skin .eyes*
STOT-repeated exposure	*Through prolonged or repeated exposure can damage organs (kidney, respiratory system)*

11.8 Symptoms related to the physical, chemical and toxicological characteristics:

In case of inhalation	*Ammonia in gas form is irritant to the mucous membranes of the respiratory tract (airways).* *Exposure to concentrations above the Exposure Standard of 25 ppm may cause irritation to the eyes, nose and throat.* *Higher concentrations may cause breathing difficulty, chest pain, bronchospasm, pink frothy sputum and pulmonary oedema.* *This may further predispose the patient to the development of acute bronchitis and pneumonia.*
In case of skin contact	*Liquid splashes or spray may cause freeze burns.* *Contact with skin will result in severe irritation.* *Corrosive to skin - may cause skin burns.*
In case of eye contact	*A severe eye irritant.*

	Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury. Liquid splashes or spray may cause freeze burns to the eye.
In case of ingestion	*Not a likely route of exposure, however, swallowing liquid will result in freeze burns of the mouth, throat and stomach.*

11.9 Additional Toxicological Information:

- *It can cause permanent respiratory diseases in case of exposure above the professional exposure limits*
- *EEC Toxicity criteria for gases and vapors:*
  - *Average Lethal Concentration : 500-2000 mg/m^3 (>1700ppm)*
  - *The strong poisoning effect; 500 ppm , 1 Hour*
  - *Symptoms of illness ; 200 ppm*
- *RTECS [Ammonia Cas # 7664-41-7] : BO0875000*
- *The special effects to health are considered by taking into account the information in section 3.*

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

Toxic to aquatic organisms

Toxicity to fish

- *LC50: 0.53 mg/L (96 h) (rainbow trout)*

Toxicity to dapnia

- *LC50: 24,4-189 mg/L (48 h) (daphnia magna)*

Toxicity to algea

- *EC50: No data avaible*

12.2 Photo degradation

Ammonia [7664-41-7]
Air: Half life - t1/2: 100,3 days

12.3 Effects on Waste Water Treatment Plants

Product has inhibitory effects on the activities of micro-organisms, whether the information is not related, the likely impact on waste water treatment plants is unknown.

12.4 Mobility

Solid
Solubility in water: Soluble
In the case of products released into the environment, ground water mixing and / or dissemination of the following information regarding the potential can be evaluated. Refer to ecotoxicity.

Water threat class	*WGK 2: Hazard to waters*
Clean Water Impact	*In clean water, it can be nitrified by microorganisms or can be absorbed by colloides and sediment particles.*
Known or predicted environmental distribution	*Ammonia NH3 gas mixed into the soil directly when used as fertilizer.*

12.5 Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 product is not fulfilling PBT (persistent/bioaccumulative/toxic)/vPvB (very persistent/very bioaccummulative) criteria

Biotic	
Ready biodegradability:	slow degradation
Abiotic:	
Hydrolysis as a function of pH:	No data available
Photolysis:	No data available
Atmospheric oxidation:	No data available

· **Persistence and degradability:**

Decomposition Potential of the products	Ammonia is strongly absorbed to soil and sediment particles and colloids in water.
The half-life of degradation	Air: Half life - t1/2: 100,3 days
Potential degradation of product content in the evaluation of wastewater treatment plants	Abiotic degradation: slow degradation. Biologic degradation: not readily degradable.

· **Bioaccumulation Potential :**

Biological environment (biota) accumulation potential	Ammonia is strongly absorbed to soil and sediment particles and colloids in water. (Log P (o/w) <1).
Potential - nutrients pass through	No data available
Reference Values - Log Kow , Sw and BCF	-1,14

12.6 Additional information

- Aquatic toxicity: Very toxic to aquatic organisms.
- Ammonia is readily oxidized to nitrite which is also very toxic to fish.
- Terrestrial toxicity: Expected to be harmful to terrestrial species.
- Do not allow to be released into the environment.
- See the sections 6, 7, 13, 14 and 15.

13. DISPOSAL CONSIDERATIONS

13.1 Product / Packaging disposal

- The generation of waste should be avoided or minimized wherever possible.
- Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant.
- Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.
- Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
- When recycling of the product is not possible, disposal to landfill or incineration in accordance with all applicable government laws and regulations is recommended.

- *Disposal according to local authority regulations.*
- *Contact waste disposal services*

13.2 Contaminated packaging

- *If there is product residue in the emptied container, follow directions for handling on the container's label.*
- *Contaminated packaging must be emptied of all residues and can be recycled following appropriate cleaning.*

13.3 Disposal Methods

- *Dispose of chemicals waste or in accordance with local regulations.*
- *Follow all applicable local laws, rules and regulations regarding the proper disposal of this material.*
- *If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine proper method for disposal.*
- *A qualified environmental professional should determine waste characterization, disposal and treatment methods for this material in accordance with applicable local regulations and requirements.*

13.4 European Waste Catalogue

- *The final classification has to be done together with the local waste disposal company / authority.*
- ***06 10 02** wastes containing dangerous substances*

14. TRANSPORT INFORMATION

UN 1005, AMMONIA, ANHYDROUS

	ADR[11]/RID[12]	*ADNR*	*IMDG[13]*	*ICAO[14]/IATA[15]*
TRANSPORTATION	***Road***	***River***	***Marine***	***Airways***
14.1. UN/ID No.	*1005*	*1005*	*1005*	*1005*
14.2. PROPER SHIPPING NAME	*UN 1005, AMMONIA, ANHYDROUS*			
SYMBOL				
14.3. TRANSPORT HAZAR CLASS	*2 (2.3)*	*2 (2.3)*	*2 (2.3)*	*2 (2.3)*
14.4. PACKAGING GROUP	-	-	-	-
CLASSIFICATION CODE	*2TC*			
LABELLING NO	*2 (2.3)*	*2 (2.3)*	*2 (2.3)*	*2 (2.3)*
HAZARD NO (HIN NO)	*268*			
TUNNEL RESTRICTION CODE	-			
EmS			*F-C;S-U*	
14.5. ENVIRONMENTAL HAZARDS			*NO*	
14.6. Special precautions for user	*Not applicable*			

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	*Not applicable*
Road Transport Notes: *This product is regulated as a hazardous material.*	

15. REGULATORY INFORMATION

15.1 Chemical Safety Assessment

No data available

15.1.1 HAZARD

CLP classification according to Annex VI of CLP (Regulation (EC) No 1272/2008)

- *This substance is classified as hazardous according to regulation (EC) 1272/2008*

15.2 INTERNATIONAL REGULATIONS

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 and ISO 11014:2009. This product is classified according to EU Directive 67/548/EC and GHS/CLP.

16. OTHER INFORMATION

16.1 Other information

- *For additional information regarding **AMON KİMYA VE MAKİNA SAN.TİC.LTD.ŞTİ.** products please contact Necmettin ÖZSÜREN.*
- *The above information complies with the (EC) No. 1907/2006 and ISO 11014:2009. Directives and their amendments.*
- *In all cases of potential poisoning supportive therapy is of the utmost importance.*

16.2 Related Person

- *Contact Person: Necmettin ÖZSÜREN- nozsuren@amonkimya.com.tr*

16.3 Revision Date, Version and SDS no

- *Date : 08.05.2020*
- *Version: 3.0*
- *MSDS No: 100004*

16.4 Reason of re-issue

- *Compiling according to Regulation (EC) No 1272/2008*

16.5 Relevant H- and EUH-phrases (number and full text):

H221	*Flammable gas.*
H314	*Causes severe skin burns and eye damage.*
H331	*Toxic if inhaled.*
H400	*Very toxic to aquatic life.*

16.6 Legal disclaimer

- *The purpose of the above information is to describe the products only in terms of health and safety requirements.*
- *The information given should not, therefore, be construed as guaranteeing specific properties or as specification.*
- *Customers should satisfy themselves as to the suitability and completeness of such information for their own particular use.*
- *The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication.*
- *The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.*
- *The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. Due to the many factors outside our control when using this product, we cannot accept liability for any injury, accident, loss or damage caused through its use.*

1 SDS: Safety data sheet
2 CLP:Classification Laballing and Packaging
3 GHS:Global Harmonised System
4 EINECS : European Inventory of Existing Chemical Substances
5 CAS: Chemical Abstract Service
[6] TWA : A Time-Weighted Average
[7] STEL : A Short Term Exposure Limit
[8] mg/m^3 : 20 oC sıcaklıkta ve 101,3 KPa. (760 mm civa basıncı) basınçtaki 1 m3 havada bulunan maddenin miligram cinsinden miktarı
[9] mg/m^3 : 20 oC sıcaklıkta ve 101,3 KPa. (760 mm civa basıncı) basınçtaki 1 m3 havada bulunan maddenin miligram cinsinden miktarı
[10] ACGIH: American Conference of Governmental Industrial Hygienists
11 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
12 RID: Regulations Concerning the International Transport of Dangerous Goods by Rail
13 IMDG: International Maritime Code for Dangerous Goods
14 ICAO: International Civil Aviation Organization
15 IATA: International Air Transport Association