

Safety Data Sheet

Conforms to 1907/2006/EC

Version 6

Issue date 10-8-2009

Ammonia, anhydrous, contains max. 0,3%water

1 Identification of the substance/preparation and of the company/undertaking

Commercial product name	Ammonia, anhydrous, contains max. 0,3%water		
Common chemical name	Ammonia, anhydrous, contains max. 0,3%water		
Synonyms			
Chemical formula	NH3		
Use of the substance/preparation	This substance is used in the chemical industry.		
EU category number	007-001-00-5		
Company name	DSM Agro B.V.		
Company address	P.O. Box 601 6160 AP Geleen The Netherlands		
Company telephone	(31) 46 476 00 55		
Company e-mail	dsm.agro@dsm.com		
Emergency telephone	(31) 46 476 55 55	24/24 hrs	7/7 days

2 Hazards identification

Physical/chemical hazards	Flammable. Gas may form explosive mixture with air. Reacts violently with acids. This substance is difficult to ignite.
Environmental hazards	Very toxic to aquatic organisms. May cause adverse effects in the aquatic environment due to changes in pH.
Effect(s) of (over)exposure	Toxic by inhalation. Causes burns. Dermal contact with a rapidly evaporating liquid could result in frosting of the tissues or frostbite.
Symptom(s) of (over)exposure	
Inhalation	Inhalation causes headaches, dizziness, drowsiness, nausea and may lead to unconsciousness. Severe over-exposure can result in death. Exposure can cause lung irritation, chest pain and oedema, which may be fatal.
Ingestion	May cause burns to mouth, throat and stomach.
Skin contact	Skin contact may produce burns. May cause permanent skin damage. Extremely cold material. Can cause burns similar to frostbite.
Eye contact	Corrosive to eyes. Permanent vision changes, loss of vision or total blindness. Extremely cold material. Can cause burns similar to frostbite.

3 Composition/information on ingredients

Chemical name	CAS no.	EC no.	% (w/w)	Symbol	R phrases
ammonia, anhydrous	7664-41-7	231-635-3	99.5 - 100	T, C, N	R10, R23, R34, R50
<i>EC no. means EINECS or ELINCS number.</i>					

4 First aid measures

General	Specific first aid and treatment are necessary. The needed resources and their instructions for use must be present. In case of inhalation of gas, symptoms may be delayed. Get medical attention immediately. Protection of first-aiders: Put on appropriate personal protective equipment (see section 8). Move exposed person to fresh air. Do not apply mouth-to-mouth resuscitation. Remove contaminated clothing and shoes
Inhalation	Remove to fresh air. Prevent cooling of the person. Keep victim at rest in half-upright position. If not breathing, give artificial respiration. Do not apply mouth-to-mouth resuscitation. Get medical attention immediately.
Ingestion	Do not induce vomiting. If affected person is conscious, give plenty of water to drink. Seek immediate medical attention.
Skin contact	Take off immediately all contaminated clothing. Do not pull clothing loose from skin. Wash immediately with plenty of water. Get medical attention.

	Eye contact	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Get medical attention immediately.
	Note to physician	Ensure that eyewash stations and safety showers are close to the workstation location.
5	Fire-fighting measures	
	Suitable extinguishing media	
	Small fire	Use dry chemical or CO ₂ . Shut off main gas valve. Withdraw from area and allow the fire to burn
	Large fire	Apply water from a safe distance to cool container and protect surrounding area. Shut off main gas valve.
	Extinguishing media not to be used	Water jet, Halogen (HCFC) extinguisher. Use water spray to keep fire-exposed containers cool. Do not spray water into the liquid (to prevent the release of gas and heat).
	Unusual fire and explosion hazards	Container explosion may occur under fire conditions or when heated.
	Hazardous thermal decomposition and combustion products	In case of fire, may produce hazardous decomposition products such as nitrogen oxides (NO, NO ₂)
	Special fire fighting procedures	Fight fire from protected location or maximum possible distance. Keep the area surrounding the fire cool. Water screens should be used to prevent formation of vapour clouds. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. Wear suitable protective clothing. Self-contained breathing apparatus. Use water spray to keep fire-exposed containers cool. Do not spray water into the liquid (to prevent the release of gas and heat). This product can burn when temperatures and concentrations are high. This substance is difficult to ignite.
6	Accidental release measures	
	Personal precautions	Provide adequate ventilation. Avoid contact with eyes, skin and clothing. Self-contained breathing apparatus. Full suit. Consult expert immediately. Keep away from sources of ignition. Take precautionary measures against static discharges. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
	Environmental precautions	Stop leak if without risk.
	Methods for cleaning up	
	Small spill and leak	Provide adequate ventilation. Stop leak if without risk. Keep away from incompatible materials and avoid specific conditions (See section 10).
	Large spill and leak	Provide adequate ventilation. Stop leak if without risk. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Water screens should be used to prevent formation of vapour clouds. Avoid release to the environment. This material and its container must be disposed of as hazardous waste. Fire/explosion hazards Keep away from sources of ignition.
	Remarks	Do not direct water at spill or source.
	Note: see section 8 for personal protective equipment and section 13 for waste disposal.	
7	Handling and storage	
	Handling	Use in closed systems. Avoid contact with eyes, skin and clothing. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Take measures against static discharge. Keep away from sources of ignition. Do not allow to enter drains or watercourses.
	Storage	Store in a fireproof location. Keep in a cool place. Use appropriate containment to avoid environmental contamination.
	Specific use(s)	
	Packaging materials	Not suitable: Aluminium, Copper, Zinc, Tin
	Note: See section 10 for stability and reactivity	
8	Exposure controls / Personal protection	
	Exposure limit values	EU OEL (Europe, 4/2004). Notes: Indicative STEL: 36 mg/m ³ 15 minute/minutes. Form: All forms STEL: 50 ppm 15 minute/minutes. Form: All forms TWA: 14 mg/m ³ 8 hour(s). Form: All forms TWA: 20 ppm 8 hour(s). Form: All forms
	Engineering measures	Use in closed systems. Provide adequate ventilation. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
	Hygienic measures	When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.
	Personal protection	Production scale
	Respiratory system	Self-contained breathing apparatus. (airhood, air fed respirator).
	Skin and body	Chemical-resistant protective suit.

Hands	Insulated gloves suitable for low temperatures
Eyes	Full-face mask Ensure that eyewash stations and safety showers are close to the workstation location.
Environmental exposure controls	
<i>Advice on personal protection is applicable for high exposure levels.</i>	
<i>Select proper personal protection based on a risk</i>	

9 Physical and chemical properties










Appearance	Gas. (Liquefied)
Color	Colourless.
Odor	Characteristic. Pungent.
Odor threshold	5 to 25 ppm
Molecular weight	17
pH	
Boiling point	-33.4 °C (101.3 kPa)
Melting point/ range	-77.8 °C
Flash point	Not available.
Flammability	
Autoignition temperature	651 °C
Decomposition temperature	
Lower explosion limit	15 volume%
Upper explosion limit	27 volume%
Minimum ignition energy	680 mJ
Critical temperature	132 °C
Relative density	
Density	Gas: 0.77 g/cm ³ (0°C) Liquid 0.6386 g/cm ³ (0 °C)
Loose bulk density	
Vapour pressure at 20°C	861 kPa
Vapour density	0.6 (Air = 1)
Partition coefficient n-octanol/water	
Viscosity	
Mean particle size	
Solubility in water	53 g/100 ml (20°C) Easily soluble in cold water
Miscibility	
Fat solubility	
Conductivity	1.9e+007 pS/m
Gas group	
Remarks	


10 Stability and reactivity

Stability	Stable under recommended storage and handling conditions (see section 7). In case of incorrect use: Fire/explosion hazards. Reactive material.
Conditions to avoid	Keep away from heat, sparks and flame.
Materials to avoid	Reactive with metals and acids. Acids, oxidizing substances. Halogens. Aluminium. Zinc.Copper. Silver oxide Mercury oxide Gold compounds.
Hazardous decomposition products	nitrogen oxides (NO, NO ₂)

11 Toxicological information

Acute toxicity				
Ingredient name	Test	Species	Route	Result
ammonia, anhydrous	LC ₅₀	Rat	inhalation	11.3 mg/l (1 hour)
Irritation		Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation (lung corrosive).		
Sensitization				
Chronic toxicity				
Carcinogenicity		Based on structure no carcinogenic activity is expected.		
Mutagenicity		Non-mutagenic for bacteria and/or yeast. [Ammonia, anhydrous].		

Reproductive toxicity						
Remarks						
12 Ecological information						
Ingredient name	Test	Period	Result			
ammonia, anhydrous	Cyprinus carpio (LC50)	96 hours	0.44 mg/l			
	Cyprinus carpio (LC50)	96 hours	0.66 mg/l			
	Lepomis macrochirus (LC50)	96 hours	1.17 mg/l			
	Poecilia reticulata (LC50)	96 hours	71.1 mg/l			
	Poecilia reticulata (EC50)	48 hours	2.94 mg/l			
Poecilia reticulata (LC50)	96 hours	128.2 mg/				
Ingredient name	Aquatic half-life	Photolysis	Biodegradability			
ammonia, anhydrous	-	-	readily			
Ingredient name	LogPow	Bio-concentration factor	Bioaccumulative			
ammonia, anhydrous	-1,3	-	low			
Mobility	For data on physical state, solubility and vapour pressure see section 9.					
Persistence and degradability						
Bioaccumulative potential						
Ecotoxicity						
13 Disposal considerations						
Responsibility of the receiver to have knowledge of national and local regulations.						
Methods of disposal	Waste must be disposed of in accordance with national and local environmental regulations					
14 Transport information						
Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
ADR/RID Class	UN 1005	Ammonia, anhydrous	2.3	-	  RID: 	Hazard identification number: 268 Limited quantity: LQ0 CEFIC Tremcard: 20S1005
ADNR Class	UN 1005	Ammonia, anhydrous	2.3	-	 	
IMDG Class	UN 1005	Ammonia, anhydrous	2.3	-	 	Emergency schedules (EmS): F-C, S-U
IATA Class	UN 1005	Ammonia, anhydrous	2.3	-	 	Quantity limitation passenger aircraft: Forbidden Quantity limitation Cargo aircraft: Forbidden

15 Regulatory information	
Responsibility of the receiver to have knowledge of national and local regulations.	
EU regulations Hazard symbol R- and S phrases National Fire protection Association (U.S.A)	 Toxic, Dangerous for the environment. Corrosive R10, R23, R34, R50, S9, S16, S26, S36/37/39, S45, S61
16 Other information	
Risk phrases Safety phrases Symbols Date previous SDS Modifications in this version References	R10- Flammable. R23- Toxic by inhalation. R34- Causes burns. R50- Very toxic to aquatic organisms. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S61- Avoid release to the environment. Refer to special instructions/Safety data sheets. T - Toxic C - Corrosive N - Dangerous for the environment. 17-9-2007 Adress change DSM: WW16454
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