

**AS Nitrofert**  
**MATERIAL SAFETY DATA SHEET**  
*Aqua Ammonia*

**Revised: February 8, 2008**



**N**

**Dangerous for environment**



**C**

**Corrosive**

## **1. IDENTIFICATION OF THE PRODUCT AND THE COMPANY**

### **1.1 Identification of the Product**

Designation	-
Trade name	Aqua Ammonia
Commonly used synonyms	Ammonia Liquor, Aqueous Ammonia, Ammonia Solution Ammonium Hydroxide.
CAS Number	1336-21-6
EINECS Number	215-647-6
EINECS Name	Ammonium hydroxide
Molecular formula	Main ingredient NH <sub>4</sub> OH

### **1.2 Company**

Name	AS Nitrofert
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**1.3 Emergency calls** **112**  
in the territory of Estonia

## **2. COMPOSITION/INFORMATION ON INGREDIENTS**

### **2.1 Nature of ingredients and concentration**

Solution of ammonia in water, concentration % (>25 %).

Main ingredient NH<sub>4</sub>OH ( aqueous solution).

## **2.2 Classification**

Corrosive according to EEC classification.

## **3. HAZARDS IDENTIFICATION**

### **3.1 Human health**

Ammonia solutions are corrosive to all parts of body.

#### *Skin Contact*

May produce severe skin burns.

#### *Eye Contact*

May produce serious damage to eyes.

#### *Ingestion*

Will immediately cause corrosion of and damage to the gastro-intestinal tract.

#### *Inhalation*

Ammonia vapours: odour threshold 5-25ppm. Vapours are irritating to respiratory system: the intensity of irritation is dependent on NH<sub>3</sub> concentration. Fluid build-up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal. Exposure to concentrations greatly in excess of the occupational exposure limit may lead to permanent respiratory impairment.

See Section 11.2.

#### *Long term effects*

No evidence of adverse effects at exposure below occupational exposure standards.

### **3.2 Environment**

Ammonia is toxic to aquatic life.

### **3.3 Other**

Ammonia vapours are flammable but difficult to ignite in open air. In an enclosed space ignition of ammonia air mixture in the flammable range can give rise to explosion hazard.

## **4. FIRST-AID MEASURES**

### **4.1 Product**

Speed is essential. Remove affected person from further exposure. Give immediate First aid and obtain medical attention.

### *Skin Contact*

Drench with large quantities of water.

Remove contaminated clothing and continue to wash the affected parts.

Obtain medical attention.

### *Eye Contact*

Immediately irrigate the eyes with eyewash solution or clean water for at least 10 minutes.

Continue irrigation until medical attention can be obtained.

Hold eyelids open during flushing.

### *Ingestion*

Do not induce vomiting.

If the person is conscious, wash out mouth with water and give 2 or 3 glasses of water to drink.

Obtain immediate medical attention.

### *Inhalation*

Move the injured person to fresh air at once.

Keep warm and at rest.

Administer oxygen if competent person is available.

Apply artificial respiration, if breathing has stopped or shows sign of failing.

Obtain immediate medical attention.

### *Further medical advice*

Following severe exposure, the patient should be kept under medical review for at least 48 hours as delayed pulmonary (oedema may develop).

## **5. FIRE-FIGHTING MEASURES**

Aqueous ammonia does not burn. Ammonia vapours are difficult to ignite.

Suitable extinguishing media include foam, dry powder or water.

Use a water spray to disperse vapours, protect personnel and cool tank.

Wear self-contained breathing apparatus and full protective clothing.

## **6. ACCIDENTAL RELEASE MEASURES**

Those dealing with major releases should wear full protective clothing including respiratory protection. See Section 8.

Evacuate the area down-wind of the release, if it is safe to do so.

If not, then stay indoors, close all windows and switch off any extraction fans or electrical Fires.

Isolate source of leak as quickly as possible by trained personnel.

Ventilate area of spill or leak to disperse vapours.

Contain spillages if possible.

Use water sprays to combat gas clouds.

Take care to avoid the contamination of watercourses.

Inform appropriate authority in case of accidental contamination of watercourses or drains.

## **7. HANDLING AND STORAGE**

### **7.1 Handling**

Avoid skin and eye contact and inhalation of vapours.

Provide adequate ventilation.

Wear eye and hand protection when handling small quantities.

Wear full protective clothing where there is a risk of splashes or leakage.

Use caution in opening sealed containers (due to possible pressure build-up).

### **7.2 Storage**

Store in cool, well-ventilated area, away from heat, ignition sources and direct sunlight.

Keep away from incompatible substances. (See Section 10.3.)

Do not permit smoking in the storage area.

Protect containers from corrosion and physical damages.

Suitable materials for containers are: mild steel, stainless steel, polyethylene, polypropylene.

### **7.3. R-Phrases; S-Phrases**

**R-34** Causes burns.

- R-36/37/38** Irritating to eyes, respiratory system and skin
- R-50** Very toxic to aquatic organisms.
- S-26** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S-36/37/39** 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).
- S-51** Use only in well-ventilated areas.
- S-61** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

## **8. EXPOSURE CONTROL / PERSONAL PROTECTION**

### **8.1 Occupational exposure limits**

The following values apply to ammonia vapours.

TLV/TWA: 20ppm = 14mg/m<sup>3</sup>.

TLV-STEL: 50ppm = 36 mg/m<sup>3</sup> (5 min).

### **8.2 Precautionary and engineering measures**

Local exhaust ventilation where appropriate.

Provide safety showers and eye washing facility at any location where skin or eye contact can occur.

### **8.3 Personal Protection**

Wear suitable breathing apparatus if exposure levels exceed the recommended limits.

Wear PVC gloves, boots, plastic apron, PVC suit.

Wear chemical safety goggles or full face shield.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	Colourless solution.
Odour	Pungent, suffocating smell of ammonia.
pH water solution (conc. 1%)	12.5.
Freezing point	-57.5°C

Boiling point + 38 °C (on boiling, free ammonia will be released from the solution increasing concentration and boiling temperature).

Solubility in water Miscible in all proportions.

Relative density (water=1) 0.9

## **10. STABILITY AND REACTIVITY**

### **10.1 Stability**

Thermally stable under normal conditions of storage.

### **10.2 Conditions to avoid**

Heat, direct sunlight and physical damage of container.

### **10.3 Materials to avoid**

Can react violently in contact with acid, strong oxidants, halogens, acrolein, acrylic acid, dimethyl sulphate, silver nitrate, silver oxide, hypochlorite, mercury, etc.

Ammonia solutions are corrosive to copper, zinc, aluminium and their alloys.

### **10.4 Hazardous reactions/decomposition products**

When heated, solution will release ammonia vapours.

## **11. TOXICOLOGICAL INFORMATION**

### **11.1 General**

Ammonia solutions are caustic and therefore, highly irritating to eyes, skin and mucous membranes.

### **11.2 Toxicity Data**

#### *Skin Contact*

Vapour, in the presence of moisture, is an irritant to skin.

Liquid splashes may cause chemical burns or blisters if contact is prolonged.

#### *Eye Contact*

Ammonia vapours emitted from ammonia solutions can cause irritation and watering of eyes, severe damage can occur at high concentrations.

Liquid splashes may cause caustic damage and hence permanent damage to the eyes.

### *Inhalation*

Ammonia vapour has odour threshold of 5ppm for some and 25ppm for most people. At 50-100ppm irritation experienced by most people.

Exposure to ammonia vapours may cause respiratory tract irritation, coughing, and difficulty in breathing. At high concentration exposure, even for short periods, may result in severe lung damage which could be fatal.

Pulmonary oedema may occur up to 48 hours after severe exposure and could prove fatal.

Exposure to ammonia concentrations greatly in excess of the occupational exposure limit may lead to permanent respiratory impairment.

**Anhydrous ammonia** is classed as toxic.

(EEC Toxic criterion for gases and vapours:

Median Lethal Concentration - 4 hour exposure: 500 to 2000mg/m<sup>3</sup>.)

### *Ingestion*

Will cause severe corrosion and damage to gastro-intestinal tract.

## **11.3 Other Data**

No adverse effect has been evaluated by IARC as regards carcinogenicity.

Ammonia is not mutagenic in Ames Salmonella test.

## **12. ECOLOGICAL INFORMATION**

### **12.1 Mobility**

Very soluble in water. NH<sub>4</sub><sup>+</sup> ion is adsorbed by soil.

### **12.2 Persistence/Degradability**

In the soil, ammonia is quickly oxidized by micro-organisms to nitrate ion.

In fresh water, it may be nitrified by micro-organisms or adsorbed on sediment particles and colloids, substantially biodegradable in water.

In the atmosphere, it may be degraded by photolysis or neutralized by acid pollutants of the air.

### **12.3 Bio-accumulation**

Low potential.

## 12.4 Ecotoxicity

Free (non-ionised) ammonia in surface water is toxic to aquatic life, however the ammonium ion which predominates in most waters is not toxic. In the event of water contamination with ammonia, ammonium salt which may be formed will not present a toxic hazard. Increases in pH above 7.5 leads to an increased level of non-ionised ammonia.

LC50 (96 hour)(various species) <1mg/l. Studies in Fish have shown that repeated exposures produce adverse effects on growth rate at concentrations greater than 0.0024mg/l.

EC50 (Daphnia magna)(48 hour) 24.4-189mg/l.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 General

Disposal should be in accordance with local, or national legislation.

## 14. TRANSPORT INFORMATION

### 14.1 UN Classification

Class 8, Corrosive Substances, UN 2672

### 14.2 Details

ADR/RID: Class 8, Item: 43°(C), Label: 8 Packaging Group III

IMDG: Class 8, Label: 8, Packaging Group III

## 15. REGULATORY INFORMATION

### 15.1 EEC Directives

Classification and labelling according to EC Directive 67/548/EEC

**Classification** Corrosive

**Indication/s of danger** C, Corrosive

**R-34** Causes burns.

**R-36/37/38** Irritating to eyes, respiratory system and skin

**R-50** Very toxic to aquatic organisms.

**S-26** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**S-36/37/39** 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).
- S-51** Use only in well-ventilated areas.
- S-61** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

82/501/EEC and 87/216/EEC (Seveso Major Accident Hazard)

## 15.2 National laws

Chemicals Act and legal acts and regulations pertinent thereto.

## 16. OTHER INFORMATION

The information is presented by:

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