

**M A T E R I A L S A F E T Y D A T A S H E E T****Producer / Importer:** "AGROPOLYCHIM" AD**Date of issue:** .08.2005.**Address:****Edition:** 2 /

Industrial zone, Devnya

Rescind edition: 1 /

Post code: 9160

Pages: 7

Bulgaria

Identification of substance or product:**UREA AMMONIUM NITRATE SOLUTION****Product code:** UAN**1. Identification of substance (product) and the company:****1.1. Identification of substance or product:**

NAME OF THE PRODUCT: Liquid Nitrogen Fertilizer	CAS № None	EINECs №: None
CHEMICAL NAME: Urea Ammonium Nitrate solution	MOLECULAR FORMULA: $\text{NH}_4\text{NO}_3 + \text{CO}(\text{NH}_2)_2 + \text{H}_2\text{O}$	PRODUCT CODE: UAN Solution 32 % total Ammonia

1.2. General information:*Inorganic Fertilizer***1.3. Company identification (Name and address):***"Agropolychim" JSC, Devnya, Bulgaria
Industrial zone, Devnya 9160***1.4. Contact numbers in case of emergency:***Tel: +359519 / 97 – 530 ; fax: + 359519 / 9 - 33 - 63***2. Composition / Component information:****2.1. General characteristics of chemical substances and their percentage content in the product:**

Urea Ammonium Nitrate solution

CAS№ none

COMPONENTS	WEIGHT %	CAS№	DANGER MARK	RISK PHASE
Urea $\text{CO}(\text{NH}_2)_2$	34,50 ± 1	57-13-6	NO	NO
Ammonium Nitrate NH_4NO_3	45,70 ± 1	6484-52-2	Ammonium nitrate is not classified as hazardous in	NO



Free Ammonia NH ₃	up to 300 ppm /0.03 %/	7664-41-7	concentrations below 70 % (TDG)	
Inhibitor	100 – 140 ppm	--		

2.2. Concentrations or concentration limits for substances classified as dangerous:

Ammonium nitrate is not classified as hazardous in concentrations below 70 % (TDG).

2.3. Concentrations or concentration limits for substances classified as non-dangerous:

Urea: $LD_{50} = 8471 \text{ mg/kg (rat, oral)}$;
Ammonium Nitrate: $LD_{50} = 2217 \text{ mg/kg (rat, oral)}$

2.4. Classification of substance by preceding point:

2.5. Name and number of substance by EINECS or ELINCS:

CAS № none

3. Hazards identification. Potential health effects:

Emergency overview:

Warning: Contact with liquid may cause irritation to eyes and skin. Ingestion of large quantities may produce methemoglobinemia. Residues from this product may emit toxic oxides of nitrogen when heated to decomposition. Activities that result in drying or evaporation may result in formation of ammonium nitrate, a strong oxidizer. Contact of ammonium nitrate with other materials may cause fire or explosion.

- **Inhalation:** There is no evaporation. You may feel a smel of ammonia in closed area.
- **Skin contact:** Causes irritation to skin.
- **Eye contact:** Causes irritation to eyes.
- **Ingestion:** Causes dizziness and vomiting.

4. First Aid:

4.1. Inhalation:

Move the affected person to fresh air. Get medical assistance promptly.

4.2. Skin contact:

Wash contaminated area with soap or mild detergent and water at least for 20 minutes. Seek for medical assistance.



4.3. Eye contact:

Wash thoroughly with flushing water. Get medical assistance as soon as possible.

4.4. Ingestion:

Give large quantities of water to patient. Do not induce vomiting and seek for medical assistance. Never give anything by mouth to an unconscious person.

4.5. Further medical treatment:

Symptomatic treatment and supportive therapy as indicated, if it is necessary.

4.6. Specific first aid equipment at the working place:

Availability of water and soap

5. Fire-fighting measures:

Fire: Non-combustible and non-flammable.

Flammable limits: Not applicable.

Flash point (test method): Not applicable.

Explosive limits: Not applicable.

Extinguishing media: Use extinguishing agent suitable for type of surrounding fire.

Auto-ignition temperature: Not applicable.

5.1. Appropriate fire-fighting resources:

All standard fire-fighting resources may be used.

5.2. Inappropriate fire-fighting resources:

Avoid welding or burning on pipes, or tanks which have contained UAN solution until they have been thoroughly washed out. Residual Ammonium Nitrate may explode under conditions of confinement and high temperature.

5.3. Special danger of exposition substance:

Water content of product prevents ignition. The product can support combustion if water evaporates.

5.4. Special fire-fighting protection:

Personnel must have respiratory protection.

6. Accidental release measures:

6.1. Personal protection:

Use protective clothing and rubber gloves.



6.2. Environmental protection:

Prevent from sewage or ground/surface water. Isolate and stop discharge. Take immediate steps to contain the spillage, if possible and recover any reusable product.

6.3. Spillage cleaning procedure:

Neutralizing Chemicals: Not applicable.

7. Handling and storage:

7.1. Handling:

- Rubber gloves;
- Protective goggles;
- Availability of flushing water;
- Wash thoroughly after handling;
- Do not wear contaminated clothing or shoes.

7.2. Storage:

Keep containers tightly closed. Use and store this material in cool, dry, well-ventilated areas free from combustibles and away from all sources of ignition. Store in approved containers only. UAN is mildly corrosive to carbon steel. Protect against corrosive and physical damage. Protect against extremes in temperature. Heating above 140 °F will promote hydrolysis. Extreme cold (< 32 °F) may cause crystallization of the product. Do not allow liquid to evaporate.

8. Exposure control and personal protection:

8.1. Exposure limits:

Not applicable, product is not volatile.

8.2. Exposure control:

8.2.1. Exposure control at the working place: *As scheduled.*

8.2.1.1. Respiratory protection: *If mists are generated, wear an approved respirator with a dust/mist filter.*

8.2.1.2. Hand protection: *Protective rubber gloves.*

8.2.1.3. Eye / face protection: *Protective goggles or a face shield may be necessary. A source of clean water should be available in working areas for flushing eyes.*

8.2.1.4. Skin and body protection: *Chemically resistant clothing. A source of clean water should be available in working areas for flushing skin.*



8.2.2. Control by impact of substance (product) on the environment:

Standards for UAN solution, Ammonium nitrate solution and Urea solution have not been established.

9. Physical and chemical properties:

9.1. General information:

- Appearance: *colorless liquid*
- Physical condition: *liquid*
- Color: *colorless*
- Odor: *odourless or slight smell of ammonia*

9.2. Physical and chemical information:

pH:	<i>6,5 – 7,5 (for 10 % solution)</i>
flash point:	<i>not applicable</i>
melting point:	<i>29 °F (-2 °C) for 32% N</i>
boiling point:	<i>above 200 °F (100 °C)</i>
oxidizing properties:	<i>none</i>
vapour pressure [20 °]:	<i>60 °F (15,6 °C): 0,06 psia for 32 % N</i>
relative density:	<i>min 1,243 (H₂O = 1)</i>
solubility in water:	<i>miscible with water</i>
solubility in organic solutions:	<i>insoluble</i>
bulk density:	<i>11,04 lbs/gal for 32 % N</i>
viscosity:	<i>40°F: 6,1 cP; 60°F: 4,7 cP (32% N)</i>
vapour density:	<i>not applicable</i>
evaporation rate:	<i>not applicable</i>
molecular formula:	<i>NH₄NO₃ + CO(NH₂)₂ + H₂O</i>
Molecular weight:	<i>not applicable</i>

9.3. Other information:

Water / oil distribution coefficient:	<i>Urea – 1,59, Ammonium Nitrate – 3,1</i>
percentage volatile by volume:	<i>not applicable</i>

10. Stability and reactivity:

Stable under normal conditions of storage and handling. **Hazardous decomposition products:** Material will not burn, but if involved in fire, oxides of carbon and nitrogen may be generated. Exposure to heat may liberate ammonia fumes. **Conditions and materials to be avoided:** heat, flame, ignition sources, dusting and incompatibles, organic, oxidizable materials and combustible material. **Incompatibilities:** copper, brass, organic materials.



10.1. Conditions to be avoided:

Avoid storage at high temperature. Components decompose and emit toxic gases. By high pressure it explodes if heated confinement so that pressure builds up. Do not allow material to evaporate to dryness.

10.2. Materials to be avoided:

Avoid contact with organic compound.

10.3. Hazardous decomposition products:

NH₃, HNO₃, NO_x

11. Toxicological information:

There is no definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

Toxicity: Oral rat LD50: above 2,950 mg/kg, dermal LD50: no data available

Carcinogenicity: Not listed by ACGIH, IARC, OSHA, NTP

Teratogenicity: Not listed by ACGIH, IARC, OSHA, NTP

Mutagenicity: Not listed by ACGIH, IARC, OSHA, NTP

12. Ecological information:

UAN is non-toxic to aquatic organisms as defined by USEPA.

Fish 96 hour LC50: above 103 mg/l

12.1. Ecotoxicity:

For ammonium nitrate: 48-hour LC50 (incl. carp) 74,000 µg/l.

For nitrogen: 48-hour LC50 (un-ionized) 947 µg/l.

For nitrate ion: 96 hour freshwater and 7-days LC50 1,350 and 1,650 µg/l.

12.2. Mobility:

- Prevent from penetrating into sewage or surface water.

12.3. Persistence and degradability:

- Stable.

12.4. Accumulation:

- Non accumulative.



13. Disposal considerations:

Disposal should be in accordance with applicable local, state and national environmental regulatory requirements.

14. Transport information:

*Transport in bulk by lorry, tank-car, tankers.
UAN is not listed as a hazardous material by the US Department of Transportation, Transport Canada and the United Nations.*

15. Regulatory information:

This MSDS is created according to national (Bulgarian State Standard (BSS) and European legislation.

*Please revert to the state regulations, which are applicable to this product.
Keep away from ignition sources.
Avoid contact with skin and eyes.*

16. Other information:

Version № 2

Revision Date: August, 2005

Section Revised: All, new format.

The seller does not take any responsibility or obligations concerning information presented in this document or for any damages and injuries from the above-mentioned product. All safety regulation and instructions must be observed.

The seller is not responsible for any damages or injuries caused by the use of the product even by observing all safety regulations.

Disclaimer: This information relates to the specific material designated and may not be valid for such material used in combination with any other product or in any process. Such information is to be the best of our knowledge and belief, accurate and reliable as of the date compiled.

It is the user's responsibility to use this information for their own particular purposes. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.