SAFETY DATA SHEET

(according to Regulation (EC) No 1907/2006 (REACH), ANNEX II)

UREA-AMMONIUM NITRATE SOLUTION

Revision date: 01.06.2012 Version 3.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY	
1.1 Product identifier	
Trade name:	Liquid Nitrogen Fertilizer (UAN-32)
Other names:	Urea-Ammonium Nitrate Solution
INDEX No. as listed in Annex VI of CLP:	Not listed
REACH registration No.:	Not available as the product is a mixture. Relevant registration number of the components: Ammonium Nitrate - 01-2119490981-27-0042 Urea - 01-2119463277-33-0048
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Relevant identified uses:	Fertilizers
Uses advised against:	None
1.3 Details of the supplier of the safety data sheet	
Only Representative:	OSTCHEM GERMANY GmbH Erdmannstr. 10 222765 Hamburg, Germany Phone: +49 40 5300 300 Fax: +49 40 5300 30 33 www.ostchem.com E-mail: matthaeus.ebinal@ostchem.de larissa.schmelzing@ostchem.de
Manufacturer:	PJSC "AZOT" 72, Pervomayskaya Str., Cherkassy, Ukraine Tel.: +38 0472 39-63-03 +38 0472 39-23-33 URL website: http://www.azot.cherkassy.net Email: let@azot.cherkassy.net sale@azot.cherkassy.net avalon@azot.cherkassy.net
E-mail address of the person responsible for this Safety Data Sheet:	PJSC "AZOT" REACH Department onr@azot.cherkassy.net
National contact:	Not available
1.4 Emergency telephone number	
Emergency phone number:	Tel: + 49 405 300 300 Opening hours: 9-18 (CET) Languages of the phone service: German, English, Russian Tel: + 38 (0472) 39 61 17 Opening hours: 0-24 Languages of the phone service: Russian, Ukrainian
SECTION 2: HAZARDS IDENTIFICATION	
2.1 Classification of the substance or mixture	
Product definition: Mixture	
The mixture is not classified as hazardous in accordance with Regulation 1272/2008 (CLP) as well as with Directive 1999/45/EC (DPD).	
2.2 Label elements	
Hazard pictograms: Signal word: Hazard statements: **Precautionary statements** Prevention: Response: Storage: Disposal:	Not applicable No signal word Not applicable Not applicable Not applicable Not applicable Not applicable
2.3 Other hazards:	
Mixture meets the criteria for PBT according to Regulation (EC) No.1207/2006, Annex XIII	No. P: Not available. B: Not available. T: No.
Mixture meets the criteria for vPvB according to Regulation (EC) No.1207/2006, Annex XIII	Not available

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Other hazards which do not result in classification	Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Description of the mixture: Mixture of urea and ammonium nitrate

Components	CAS No.	REACH Registration No.	Concentration	Classification	
				67/548/EEC	Regulation (EC) No.1272/2008 [CLP]
Urea	57-13-6	01-2119463277-33-0048	33.0-37.0 %	Not classified	Not classified
Ammonium nitrate	6484-52-2	01-2119490981-27-0042	43.0-48.0 %	R8;R36 O; Xi	H272 H319

Note: *The product is treated with corrosion inhibitor.*

See Section 16 for the full text of the H-statements and R-phrases declared above.

SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures	
General notes:	Appropriate first-aid equipment should be provided. No action shall be taken involving any personal risk or without suitable training.
Following eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Following skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Following ingestion:	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Following inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Self-protection for the first-aider:	None
4.2 Most important symptoms and effects, both acute and delayed	
Potential acute health effects	
Eye contact:	No known significant effects or critical hazards
Inhalation:	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact:	No known significant effects or critical hazards
Ingestion:	Irritating to mouth, throat and stomach.
Over-exposure signs/symptoms	
Eye contact:	No specific data.
Inhalation:	No specific data.
Skin contact:	No specific data.
Ingestion:	No specific data.
4.3 Indication of any immediate medical attention and special treatment needed	
Notes to physician:	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments:	No specific treatment

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media	
Suitable extinguishing media:	Use extinguishing media suitable for surrounding materials.
Not suitable extinguishing media:	None
5.2 Special hazards arising from the substance or mixture	
Hazards from the substance or mixture:	None.
Hazardous combustion products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, ammonia, amines
5.3 Advice for firefighters	

Special precautions for fire-fighters:	No special measures required
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for firefighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel
Protective equipment: Put on appropriate personal protective equipment if necessary.
Emergency procedures: Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation.
6.1.2 For emergency responders:
If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers.
Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways or air).

6.3 Methods and material for containment and cleaning up

6.3.1 For containment: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas.
6.3.2 For cleaning up: Contain and collect spillage with non-combustible, absorbent material, e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.
6.3.3 Other information
Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections
See section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.
Measures to prevent fire: Keep away from heat. Keep away from sources of ignition.
Measures to prevent aerosol and dust generation: Store in a well ventilated area.
Measures to protect the environment: Empty containers retain product residue and can be hazardous.
Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions:	Store in accordance with local regulations. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Suitable packing material: stainless steel, synthetic material. Not suitable packing material: zinc and copper.
Packing materials:	Use dedicated containers
Requirements for storage rooms and vessels: Storage class:	 12
Further information on storage conditions:	None
Incompatible products:	Strong acids, strong bases, organic materials, chromates, zinc, copper and nickel.
7.3 Specific end use(s):	None

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 National occupational exposure limit values (urea, ammonium nitrate): Not available

8.1.2 National biological limit values (urea, ammonium nitrate): Not available

8.1.3 PNEC (Predicted No Effect Concentration):

Environmental protection target	PNEC	
	Urea	Ammonium nitrate
Aqua – freshwater	0.047 mg/L	0.45 mg/L
Aqua – salt/marine water	0.047 mg/L	0.045 mg/L
Aqua – intermittent releases	No exposure expected	4.5 mg/L
Sediment	No exposure expected	No hazard identified
Soil	No exposure expected	No hazard identified
Sewage treatment plant	No exposure expected	18 mg/L
Food chain: oral (secondary poisoning)	No exposure expected	No exposure expected
Air:	No exposure expected	No hazard identified

8.1.4 DNEL

UREA

ACUTE

Route	Derived No Effect Level (DNEL)	
	Workers	General population
Oral	Not applicable	42 mg/kg bw/day
Dermal	580 mg/kg bw/day	580 mg/kg bw/day
Inhalation	292 mg/m^3	125 mg/m^3

LONG TERM

Route	Derived No Effect Level (DNEL)	
	Workers	General population
Oral	Not applicable	42 mg/kg bw/day
Dermal	580 mg/kg bw/day	580 mg/kg bw/day
Inhalation	292 mg/m^3	125 mg/m^3

No evidence of local effects is seen in any of the dermal studies performed with urea; there is no evidence of local effects from human studies or from experience of human exposure. Respiratory irritation is not predicted. DNELs for local effects are therefore not relevant and are not calculated for urea.

AMMONIUM NITRATE

Route	Derived No Effect Level (DNEL)	
	Workers	General population
Oral[1]	Not applicable	12.8 mg/kg bw/d
Dermal[1]	21.3 mg/kg bw/day	12.8 mg/kg bw/day
Inhalation[1]	37.6 mg/m^3	11.1 mg/m^3

[1]: As an acute toxicity hazard leading to Classification and Labeling of the substance has not been identified, the long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment: Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter B.8 Scope of Exposure Assessment, March 2010).

8.1.5 Monitoring procedures: Not available

8.2 Exposure controls

8.2.1 Appropriate engineering controls:

Substance/mixture related measures to prevent exposure during identified uses: The usual precautions for the handling of chemicals must be observed. Before direct contact with the substance use personal protection equipment.

Technical measures to prevent exposure: No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

8.2.2 Personal protection equipment:

8.2.2.1 Respiratory protection:	No special protection is required. In case of insufficient ventilation, wear suitable respiratory equipment.
8.2.2.2 Skin protection:	

Hand protection: Other skin protection:	Gloves: leather, butyl rubber and neoprene. Working clothes
8.2.2.3 Eye and face protection:	Safety glasses with side shields.
8.2.2.4 Thermal hazards:	None
8.2.3 Environmental exposure controls:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Advice on personal protection is applicable for high exposure levels.
Select proper personal protection based on a risk assessment of the actual exposure situation

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Colourless liquid
Odour:	Odourless or mild ammonia odour
Odour threshold:	Not available
pH:	7.4-8.1
Melting point/Freezing point:	- 26°C
Initial boiling point and boiling range:	>100°C
Flash-point:	Not available.
Evaporation rate:	Not available.
Flammability (solid, gas):	Not available.
Auto-ignition temperature:	Not applicable.
Upper/lower flammability or explosive limits:	Not applicable
Vapour density:	Not available.
Oxidising properties:	Non-classified as oxidizing substance in compliance with Directive 1999/45 EC.
Vapour pressure:	Not available.
Relative density:	Not available.
Solubility in water:	The preparation is water solution, so it may be diluted with water without any limits.
Partition coefficient n-octanol/water:	Not available.
Viscosity:	Not available.
Explosive properties:	None
Decomposition temperature:	Not available

9.2 Other information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
No specific test data related to reactivity available for this product.

10.2 Chemical stability
The product is stable.

10.3 Possibility of hazardous reactions
No hazardous reaction when handled and stored according to these provisions (see section 7, handling and storage).

10.4 Conditions to avoid
Possible dangerous reactions with other chemicals are unknown; do not mix with other substances. After defreezing, the properties are not changed.

10.5 Incompatible materials
Reducing agents, strong acids and bases, metal powders, combustible materials, chromates, zinc, copper and copper alloys, chlorates

10.6 Hazardous decomposition products
Carbon monoxide, ammonia (NH_3), nitrogen oxides (NO, NO_2 etc.)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Acute toxicity	Oral:	LD50(rats) > 2950mg NH_4NO_3 / kg; LD50(rats) > 14300mg $CO(NH_2)_2$ / kg
	Dermal:	Not available
	Inhalation:	Not available

OSTCHEM

AZOT

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11.1.2 Repeated dose toxicity	Oral:	Not available
	Dermal:	Not available
	Inhalation:	Not available
11.1.3 Irritation:	Not available	
11.1.4 Corrosivity:	Not available	
11.1.5 Sensitization:	Not available	
11.1.6 Toxicity for reproduction:	Not available	
11.1.7 Mutagenicity :	No known significant effects or critical hazards	
11.1.8 Carcinogenicity:	Not available	
SECTION 12: ECOLOGICAL INFORMATION		
12.1 Toxicity		
Fish (freshwater, short-term):	Not available	
Fish (long-term):	Not available	
Freshwater invertebrates (short-term):	Not available	
Freshwater invertebrates (long-term):	Not available	
Freshwater algae:	Not available	
Terrestrial plants:	Not available	
Soil macro-organisms:	Not available	
Birds:	Not available	
Mammals:	Not available	
12.2 Persistence and degradability		
Abiotic degradation:		
Phototransformation/photolysis	Not available	
Biodegradation:	Not available	
Hydrolysis:	Not available	
12.3 Bioaccumulative potential		
Not available.		
12.4 Mobility in soil		
Known or predicted distribution to environmental compartments:	Not available	
Surface tension:	Not available	
Adsorption coefficient:	Not available	
12.5 Results of PBT and vPvB assessment		
Not applicable.		
12.6 Other adverse effects :No known significant effects or critical hazards. ***Remarks:*** *No ecological problems are to be expected when the product is handled and used with due care and attention.*		
12.7 Additional information: None		
SECTION 13: DISPOSAL CONSIDERATIONS		
13.1 Waste treatment methods		
13.1.1 Product / Packaging disposal:	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. 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.	
Waste codes / waste designations according to LoW (Commission Decision 2001/118/EC):	06 10 99 Wastes not otherwise specified	
13.1.2 Waste treatment-relevant information:	The generation of waste should be avoided or minimised wherever possible.	
13.1.3 Sewage disposal-relevant information:	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.	
13.1.4 Other disposal recommendations:	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.	

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SECTION 14: TRANSPORT INFORMATION				
The product is not classified as dangerous when carried by road (ADR), train (RID) or maritime (IMDG)				
	ADR/RID	**ADN/ADNR**	**IMDG**	**IATA**
14.1 UN number	Not regulated	Not regulated	Not regulated	Not regulated
14.2 UN proper shipping name	–	–	–	–
14.3 Transport hazard class(es)	–	–	–	–
14.4 Packing group	–	–	–	–
14.5 Environmental hazards	No	No	No	No
14.6 Special precautions for user	Not available	Not available	Not available	Not available
Additional information	–	–	–	–
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available				

SECTION 15: REGULATORY INFORMATION	
15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture	
EU Regulations	
Authorisations and\or restrictions on use: ***Authorisation:*** EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV - List of substances subject to authorisation Substances of very high concern ***Restrictions on use*:** Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	None of the components are listed Not applicable
National regulations (*country*): Not available	
15.2 Chemical safety assessment:	Not applicable

SECTION 16: OTHER INFORMATION	
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 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. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any proceed, unless specified in the text.	
16.1 Indication of changes:	Changes were made to comply with the Guidance on the compilation of safety data sheets (version 1.1)
Page header; 1.1; 1.3; 1.4; 3.2; 4.1; 5.1; 6.1; 6.3; 7.1; 7.2; 7.3; 8.1; 8.2; 9.1; 9.2; 11.1; 12.2; 12.4; 12.7; 13.1; 15.1	
16.2 Abbreviations and acronyms:	

- ADN - European Agreement concerning the International Carriage of Dangerous Goods on Inland Waterway
- ADNR - ADN Rhine
- ADR - Agreement on Dangerous Goods by Road
- CAS - Chemical Abstracts Service
- CLP - Classification, Labelling and Packaging of chemicals
- DPD - Dangerous Preparations Directive
- EC - European Commission
- IATA - International Air Transport Association
- IBC Code - International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
- IMDG - International Maritime Dangerous Goods
- LD50 - Lethal Dose
- LoW - List of Wastes
- MARPOL - International Convention for the Prevention of Pollution From Ships
- PBT - Persistent, bioaccumulative, toxic chemical
- PJSC - Public Joint-Stock Company
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals
- RID - International Rule for Transport of Dangerous Substances by Railway
- UN - United Nations
- vPvB - very persistent, very bioaccumulative

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16.3 Key literature references and sources for data: CSR (Chemical Safety Report), Guidance on safe use etc.	
16.4 Training advice:	In accordance with the local regulations
16.5 Further information:	None
16.6 Full text of classifications [CLP/GHS]:	*R8: Contact with combustible material may cause fire* *R36: Irritating to eyes* *Xi: Irritant* *O: Oxidizing* *May intensify fire; oxidiser. (H272)* *Causes serious eye irritation (H319)*