Zaklady Chemiczne „Police” S.A.	Safety Data Sheet *according to Regulation (EC) 1907/2006*	**SDS-ZChP- 018/07** version 10	
	Urea solution 32.5%	**The date of:**	
		compilation	revision
		29.03.2007	13.07.2018

SECTION 1: Identification of the mixture and of the company/undertaking

1.1. Product identifier

Product name **NOXy® (otherwise AdBlue®)**

Synonyms urea solution 32.5%, urea solution

1.2. Relevant identified uses of the mixture and uses advised against

Used in the cleanning of exhaust gases from NOx and SOx. Used as a fertilizer, in manufacturing of cleaning and maintenance products, antifreeze products. Used as intermediate or processing aid in the chemical industry.
Uses advised against have not been identified.

1.3. Details of the supplier of the safety data sheet

Grupa Azoty Zaklady Chemiczne „Police” S.A.
Internet: ***grupaazoty.com***

Kuznicka 1, 72-010 Police, Poland
Phone no: + 48 91 317 1090
Tele-Fax no: + 48 91 317 3103

A person responsible for Safety Data Sheet *e-mail*: **reach-sds@grupaazoty.com**

1.4. Emergency telephone number

Chief Dispatcher Alarm telephone no: + 48 91 317 1616 (24h)
Telephone no: + 48 91 317 4201 (24h)

SECTION 2: Hazards identification

2.1. Classification of the mixture

According to Regulation (EC) No 1272/2008 the mixture is not classified as a dangerous.

Human Heath effects

Skin effect	Longer contact may cause skin irritation
Eyes effect	Longer contact may cause eye irritation. Remove contact lenses.
Swallowing	Ingestion of a larger amount (above 50 g) leads to gastrointestinal discomforts.
Inhalation	Vapors may cause nose irritation and irritation of the upper respiratory tract.
Long - term effects	No negative effects are known.
Fire and products of thermal decomposition	Inhalation of gases coming from thermal decomposition may cause irritation and caustic action for the respiratory system. Influence on lungs may occur over some time.
Fire and warming	Urea decomposes when heating producing ammonia. In case of fire toxic gases containing ammonia, carbon dioxide and nitric oxides - NO_x may be released.

2.2. Label elements

According to Regulation (EC) No 1272/2008 the mixture is not classified as dangerous.

2.3. Other hazards
Component of mixture – urea – do not meet the criteria neither for a PBT nor a vPvB substance.

SECTION 3: Composition/information on ingredients

3.2. Mixtures
Aqueos solution containing containing urea 32,2%.

Ingredient	CAS number	EC number	The approximate amount of the component
Urea	57-13-6	200-315-5	32,5 %
	Registration number: 01-2119463277-33-0044		

SECTION 4: First aid measures

4.1. Description of first aid measures

Skin contact	Rinse contaminated area with plenty of water. Remove contaminated clothing and wash before reuse. If irritation persists seek medical attention.
Eye contact	Wash thoroughly with water for at least 15 minutes. Obtain medical attention.
Swallowing	Wash out mouth with water. Do not induce vomiting. If patient is conscious, give water to drink. If patient feels unwell seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Acute and delayed symptoms and effects do not occur in normal conditions of use (see section 11).

4.3. Indication of any immediate medical attention and special treatment needed
No data.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Apply the best known means to extinguish fire.
Unsuitable extinguishing media	No data

5.2. Special hazards arising from the mixture
Call the fire brigade. Avoid inhalation of fumes (they are toxic). Evacuate against the wind or in the direction perpendicular to the wind.
If water containing a dissolved product is released to sewage or waters, inform local authorities immediately.
Contact with skin
- Skin having contact with a melted material to be washed with a large amount of water.
- Provide medical attention.

Inhalation
- Remove the injured from area endangered with toxic gases.

- Provide the injured warmth and calmness.

Persons exposed to inhalation of gases being products of decomposition should be provided with immediate medical attention.

5.3. Advice for firefighters

When fighting fire (connected with water evaporation, thermal decomposition of urea and release of fumes) wear:

- insulating equipment with compressed air protecting respiratory system
- gas-tight clothes

Use plenty of water. Stay facing fire, always back to wind. Do not let the product enter sewer.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid contact with released product and inhalation of vapor or spray. Use appropriate personal protective equipment.

6.2. Environmental precautions

Pay attention to avoid pollution of waters or sewage ducts and inform proper authorities in case of their accidental pollution.

6.3. Methods and material for containment and cleaning up

If only it is possible the spilled product should be immediately removed and placed in a clean, marked container.

As a absorbent material use sand, dry soil or another non inflammable material. Place the gathered material in a marked container, not causing dusting.

Depending of the degree and character of pollution use the gathered product as the liquid fertilizer for agricultural purposes or give over to a specialized firm for neutralization.

6.4. Reference to other sections

See section 13 for waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin, eyes and clothes. When handling the product wear proper protective clothes and protective gloves (See Section 8).

7.2. Conditions for safe storage, including any incompatibilities

Do not store in temperature above 30°C.

Store the product in tightly closed tanks or containers, in a separate, marked place, situated on the hardened surface in such a way that the mixture is not allowed to enter the watercourses and groundwater. Secure grilles and sinks, especially during rain.

7.3. Specific end use(s)

No specific use is identified.

Component of mixture – urea – is not classified as a dangerous substance. Exposure scenarios have not been made.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Values for component: urea

DNEL[1] for workers

Acute - systemic effects	Dermal	580 mg/kg bw/d
Acute - systemic effects	Inhalation	292 mg/m³
Long-term - systemic effects	Dermal	580 mg/kg bw/d
Long-term - systemic effects	Inhalation	292 mg/m³

DNEL for general population

Acute - systemic effects	Dermal	580 mg/kg bw/d
Acute - systemic effects	Inhalation	125 mg/m³
Acute - systemic effects	Oral	42 mg/kg bw/d
Long-term - systemic effects	Dermal	580 mg/kg bw/d
Long-term - systemic effects	Inhalation	125 mg/m³
Long-term - systemic effects	Oral	42 mg/kg bw/d

PNEC[2]

PNEC aqua (freshwater)	0.047 g/L

8.2. Exposure controls

When handling the product for a longer time, wear proper protective gloves.
Before having meals, smoking and after finishing work wash carefully the hands, arms, and face.
Protective clothing: chemical protective clothing.
Respiratory protection: not required under normal conditions of work.
Eye protection: protective goggles / tight goggles,
Hand protection: Chemical-resistant gloves in accordance with EN 374.
Technical protective equipment: exhaust ventilation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties of urea solution

Odour	Faint smell of ammonia
Appearance	Transparent liquid
pH	ca 10 (basic reaction)
Freezing point	-10,5°C
Boiling point	Decomposition in temp. 100°C
Flammability	Non flammable
Vapour pressure	6,4 kPa (48 mm Hg) in 20°C
Density	ca 1.09 g/cm³ in 20°C
Water solubility	Unlimited
Refractive index	ca 1,383
Oxidising properties	None

Properties of mixtures component (urea)

Physical state at 20°C and 1013 hPa	Solid, Odorless
Melting / freezing point	407 K at 1013 hPa
Boiling point (at 1013 hPa)	Urea decomposes before reaching the boiling point
Relative density	1330 at 20°C
Vapour pressure	0.002 Pa at 298 K
Water solubility	624000 mg/L at 20 °C
Partition coefficient n-octanol/water	Log Kow (Pow): -1.73 at 20 °C

[1] **DNEL** Derived No-Effect Level

[2] **PNEC** Predicted No-Effect Concentration

Surface tension	Not applicable due to the chemical structure
Flammability	Non flammable
Flash point	The substance decomposes at the melting point.
Self-ignition temperature	No evidence of self-ignition property of urea
Explosive properties	No explosive properties
Oxidising properties	No oxidising properties
Stability in organic solvents and identity of relevant degradation products	The stability of the substance in organic solvents is not a critical property
Granulometry	Fraction 1 – 3 mm min. 90%
Dissociation constant	Above 0.6 (pKb)
Viscosity	The substance is a solid at room temperature

9.2. Other information
No data.

SECTION 10: Stability and reactivity

10.1. Reactivity
Non reactive during storage, handling and application in normal conditions.

10.2. Chemical stability
Stable during storage, handling and application in normal conditions.

10.3. Possibility of hazardous reactions
Unknown.

10.4. Conditions to avoid
Heating over 100ºC temperature
Welding or heat treatment of devices on the installation where the urea solution may be present before earlier thoroughly washing it in order to remove any rests of urea.

10.5. Incompatible materials
Strong oxidants, acids, alkalis, nitrates, calcium hypochlorite or sodium hypochlorite.

10.6. Hazardous decomposition products
Ammonia - NH_3, nitric oxides NOx and carbo oxides (CO, CO_2).
Urea in solution reacts with calcium or sodium hypochlorite creating explosive nitrogen trichloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Values for component: urea

Acute toxicity	LD50[3] (oral)	14300 mg/kg bw – rat (Wistar) male/female
Irritation	Skin	not irritating – human, rabbit (New Zealand White), mouse (Nude MF1h)
	Eye	not irritating – rabbit (Vienna White)
Corrosivity	Human and animal data show that urea is not corrosive.	
Sensitization	Skin	not sensitizing – naturally present at relatively high concentrations in human skin (up to 1% by weight)
	Respiratory	not sensitizing
Repeated dose toxicity	NOAEL[4] (oral)	2250 mg/kg bw/day (rat, mouse)

[3] **LD50** Median Lethal Dose .
[4] **NOAEL** No Observed Adverse Effect Level

Mutagenicity	Genetic toxicity: negative	
Carcinogenicity	NOAEL (oral)	2250 mg/kg bw/day (NCI screening studies in the rat and mouse)
Toxicity for reproduction	LOAEL[5]	500 mg/kg bw/day

SECTION 12: Ecological information

12.1. Toxicity
Component of mixture does not fulfill the T criteria.

Values for component: urea
Aquatic compartment (including sediment)

Short-term toxicity to fish	LC50[6] for freshwater fish: 6810 mg/L
Long-term toxicity to fish	Urea is of inherently low toxicity to fish species: it is a normal product of protein catabolism.
Short-term toxicity to aquatic invertebrates	EC50[7]/LC50 for freshwater invertebrates: 10000 mg/L (Daphnia, freshwater snails and *Aedes egypti* larvae)
Long-term toxicity to aquatic invertebrates	Urea is of inherently low toxicity to species of aquatic invertebrates and exposure will be limited by the action of microorganisms and incorporation of urea into the urea cycle.
Algae and aquatic plants	EC10/LC10 or NOEC for freshwater algae: 47 mg/L – blue-green algae.
Sediment organisms	*The very high water solubility of urea and low adsorption additionally indicates very low exposure to sediment organisms.*
Toxicity to aquatic micro-organisms	The 72 hour toxicity threshold of *Entosiphon sulcatum* to urea was 29 mg/l, and the 16 hour toxicity threshold of urea to *Pseudomonas putida* was > 10000 mg/L.

Terrestrial compartment

Toxicity to soil macro-organisms	Application of urea (in common with other nitrogen fertilizers) releases ammoniacal-N which is nitrified to nitrate: an acidic species that causes gradual lowering of soil pH unless the effect is counteracted by lime application. This is not a direct effect of exposure to urea.
Toxicity to terrestrial plants	Low toxicity to plants is predicted: the substance is widely used as a fertilizer and therefore has a beneficial effect on plant growth.
Toxicity to soil micro-organisms	Urea is of inherently low toxicity to microorganisms as it is utilized as a nutrient and nitrogen source.
Toxicity to other terrestrial organisms	No data are available.

12.2. Persistence and degradability
Component of mixture does not fulfill the P or vP criteria.

12.3. Bioaccumulative potential
Component of mixture does not fulfill the B or vB criteria.

12.4. Mobility in soil
Highly biodegradable in soil and in water.

12.5. Results of PBT and vPvB assessment
Component of mixture is neither a PBT nor a vPvB substance.

12.6. Other adverse effects

[5] **LOAEL** Lowest Observed Adverse Effect Level
[6] **LC50** Lethal concentration
[7] **EC50** Half maximal effective concentration

No data.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Remains of the product, including packaging waste, should be transferred to the specialized companies with an appropriate waste management permit.
Depending on a degree and type of contamination, the product is either used as a fertilizer for agricultural purposes or transferred to the specialized company for neutralization.
In case of spill of fertilizer - see Section 6 of the safety data sheet.

SECTION 14: Transport information

Urea solution is not classified, that means they are not considered as dangerous materials according to Orange Book of UN and international transport codes, eg. RID (railway), ADR (roads transport) and IMDG (see transport).

14.1. UN number
Not applicable.

14.2. UN proper shipping name
Not applicable.

14.3. Transport hazard class(es)
Not applicable.

14.4. Packing group
Not applicable.

14.5. Environmental hazards
Not applicable.

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.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the mixture.

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EEC and 2000/21/EC. *(Official Journal of the European Union of 30.12.2006, L 396. with later changes)*
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 *(Official Journal of the European Union of 31.12.2008, L*

353. with later changes)

15.2. Chemical safety assessment
The chemical safety assessment has been made.

SECTION 16: Other information

Training Employees should be trained in the scope of proper mixture handling. Read the safety data sheet before use.

Changes Section 1.