

  Zakłady Chemiczne „Police” S.A.	Safety Data Sheet <i>according to Regulation (EC) 1907/2006</i>	SDS-ZChP- 018/07 version 11	
	Urea solution 32.5%	The date of:	
		compilation 29.03.2007	revision 21.12.2022

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

### 1.1. Product identifier

Product name                                      **NOx<sup>®</sup> (otherwise AdBlue<sup>®</sup>)**

Synonyms    urea solution 32.5%, urea solution

**1.2. Relevant identified uses of the substance or mixture and uses advised against** Used in the cleaning of exhaust gases from NO<sub>x</sub> and SO<sub>x</sub>. 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 Zakłady Chemiczne „Police” S.A.  
Internet: [grupaazoty.com](http://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](mailto:reach-sds@grupaazoty.com)

### 1.4. Emergency telephone number

Telephone no: + 48 91 434 67 54 (24h)Chief

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

#### Human Health effects

<i>Skin effect</i>	Longer contact may cause skin irritation
<i>Eyes effect</i>	Longer contact may cause eye irritation. Remove contact lenses.
<i>Swallowing</i>	Ingestion of a larger amount (above 50 g) leads to gastrointestinal discomforts.
<i>Inhalation</i>	Vapours may cause nose irritation and irritation of the upper respiratory tract.
<i>Long - term effects</i>	No negative effects are known.
<i>Fire and products of thermal decomposition</i>	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.
<i>Fire and warming</i>	Urea decomposes when heating producing ammonia. In case of fire toxic thermal decomposition products containing ammonia, carbon dioxide and nitric oxides - NO <sub>x</sub> may be released.

### 2.2. Label elements

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

### 2.3. Other hazards

Component of mixture - urea - do not meet the criteria neither for a PBT nor a vPvB substance.

The substance is not included in the list established in accordance with Article 59(1) of Regulation (EC) 1907/2006 for having endocrine disrupting properties, there is no information if the substance is a substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

Aqueous 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

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

Call the fire brigade. Avoid inhalation of thermal decomposition products (they are toxic). Evacuate 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 vapours) wear:

- respiratory protective equipment (RPE),
- gas-tight clothes.

Use plenty of water. Stand on windward side.

### **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 vapour or spray. Use appropriate personal protective equipment.

#### **6.2. Environmental precautions**

Pay attention to avoid pollution of waters and 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.

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 and marked place, on a protected surface against leakage of the solution into water and the ground.

#### **7.3. Specific end use(s)**

No specific use is identified.

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

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Values for component: urea

##### DNEL<sup>1</sup> for workers

Acute - systemic effects	Dermal	500 mg/kg bw/d
Acute - systemic effects	Inhalation	3526 mg/m <sup>3</sup>
Long-term - systemic effects	Dermal	500 mg/kg bw/d
Long-term - systemic effects	Inhalation	3526 mg/m <sup>3</sup>

##### DNEL for general population

Acute - systemic effects	Dermal	300 mg/kg bw/d
Acute - systemic effects	Inhalation	1043,5 mg/m <sup>3</sup>
Acute - systemic effects	Oral	50 mg/kg bw/d
Long-term - systemic effects	Dermal	300 mg/kg bw/d
Long-term - systemic effects	Inhalation	1043,5 mg/m <sup>3</sup>
Long-term - systemic effects	Oral	50 mg/kg bw/d

##### PNEC<sup>2</sup>

PNEC aqua (freshwater)	14,07 mg/L
PNEC aqua (marine water)	1,407 mg/L
PNEC (intermittent release)	100 mg/L
PNEC sediment (freshwater)	68,66 mg/kg
PNEC sediment (marine water)	6,866 mg/kg
PNEC STP	1000 mg/L
PNEC soil	121 mg/kg

### 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.

#### Environmental exposure controls

See section 6.

## 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

<sup>1</sup> DNEL Derived No-Effect Level

<sup>2</sup> PNEC Predicted No-Effect Concentration

<b>Boiling point</b>	Decomposition in temp. 100°C
<b>Flammability</b>	Non flammable
<b>Vapour pressure</b>	6,4 kPa (48 mm Hg) in 20°C
<b>Density</b>	ca 1.09 g/cm <sup>3</sup> in 20°C
<b>Water solubility</b>	Unlimited
<b>Refractive index</b>	ca 1,383
<b>Oxidising properties</b>	None

### Properties of mixtures component (urea)

<b>Physical state at 20 °C and 1013 hPa</b>	Solid
<b>Odour</b>	Odorless
<b>Melting / freezing point</b>	407 K at 1013 hPa
<b>Boiling point (at 1013 hPa)</b>	Urea decomposes before reaching the boiling point
<b>Relative density</b>	1330 at 20 °C
<b>Vapour pressure</b>	0.002 Pa at 298 K
<b>Water solubility</b>	624000 mg/L at 20 °C
<b>Partition coefficient n-octanol/water</b>	Log Kow (Pow): -1.73 at 20 °C
<b>Surface tension</b>	Not applicable due to the chemical structure
<b>Flammability</b>	Non flammable
<b>Flash point</b>	The substance decomposes at the melting point.
<b>Self-ignition temperature</b>	No evidence of self-ignition property of urea
<b>Explosive properties</b>	No explosive properties
<b>Oxidising properties</b>	No oxidising properties
<b>Stability in organic solvents and identity of relevant degradation products</b>	The stability of the substance in organic solvents is not a critical property
<b>Granulometry</b>	Fraction 1 - 3 mm min. 90%
<b>Dissociation constant</b>	Above 0.6 (pKb)
<b>Viscosity</b>	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 100°C 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<sub>3</sub>, nitric oxides NO<sub>x</sub> and carbo oxides (CO, CO<sub>2</sub>).

Urea in solution reacts with calcium or sodium hypochlorite creating explosive nitrogen trichloride.

**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Values for component: urea**

Acute toxicity	LD50 <sup>3</sup> (oral)	14300 mg/kg bw - rat (Wistar) male/female
Irritation	Skin	no adverse effect observed (not irritating)
	Eye	no adverse effect observed (not irritating)
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 <sup>4</sup> (oral)	2250 mg/kg bw/day (chronic, rat)
Mutagenicity	Genetic toxicity: negative	
Carcinogenicity	NOAEL (oral)	2250 mg/kg bw/day
Reproductive toxicity:	Developmental toxicity NOAEL (oral)	1000 mg/kg bw/day (subacute; rat)
STOT-single exposure	-	
STOT-repeated exposure	-	
Aspiration hazard	-	

**11.2. Information on other hazards**

No information is available on endocrine disrupting properties according to the criteria set out in the relevant Regulations ((EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605).

**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	Urea has a very low acute toxicity to fish: LC50 value = 21060 mg/L ( <i>Danio rerio</i> , FET)
Long-term toxicity to fish	EC10: 7247 mg/L ( <i>Oreochromis mossambicus</i> )
Short-term toxicity to aquatic invertebrates	EC50 <sup>5</sup> for freshwater invertebrates: 10000 mg/L (Daphnia, freshwater snails and <i>Aedes aegypti</i> larvae)
Long-term toxicity to aquatic invertebrates	EC10: 140,7 mg/L ( <i>Daphnia magna</i> )
Algae and aquatic plants	EC50 for freshwater algae: 24541,9 mg/L EC10/LC10 <sup>6</sup> lub NOEC for freshwater algae: 6895,8 mg/L
Sediment organisms	Very low exposure to sediment organisms, no testing necessary.
Toxicity to aquatic micro-organisms	The 72 hour toxicity threshold of <i>Entosiphon sulcatum</i> to urea was 29 mg/l, and the 16 hour toxicity threshold of urea to <i>Pseudomonas putida</i> was > 10000 mg/L.
Other aquatic organisms	Aquatic amphibians are not sensitive to urea

**Terrestrial compartment**

<sup>3</sup> LD50 Median Lethal Dose .

<sup>4</sup> NOAEL No Observed Adverse Effect Level

<sup>5</sup> EC50 Half maximal effective concentration

<sup>6</sup> LC10 Lethal concentration 10

<b>Toxicity to soil macro-organisms</b>	Short-term EC50 or LC50 for soil macroorganisms: 2000 mg / kg Long-term EC10 / LC10 or NOEC for soil macroorganisms: 160 mg / kg Long-term EC10 / LC10 or NOEC for soil living arthropods: 640 mg / kg
<b>Toxicity to terrestrial plants</b>	EC10 for terrestrial plants: $\geq 1000$ mg / kg
<b>Toxicity to soil micro-organisms</b>	Urea is of inherently low toxicity to microorganisms as it is utilized as a nutrient and nitrogen source. NOEC in a study similar to OECD 217: $>2358$ mg / kg
<b>Toxicity to birds</b>	Short-term EC50 or LC50 for birds: 150 g/kg food
<b>Toxicity to mammals</b>	Short-term EC50 or LC50 for mammals: 106 g/kg food Long-term EC10/LC10 or NOEC for mammals: 30 g/kg food

### 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. Endocrine disrupting properties

No information is available on endocrine disrupting properties according to the criteria set out in the relevant Regulations ((EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605).

### 12.7. Other adverse effects

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 or ID 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. Maritime transport in bulk according to IMO instruments

Not applicable.

### SECTION 15: Regulatory information

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

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18<sup>th</sup> 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, 2, 4-9, 11, 12, 14-16. Safety Data Sheet amended in accordance with Regulation (EU) No. 2020/878.