1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY

1.1. PRODUCT IDENTIFICATION

AdBlue by Azotal (compliant with ISO 22241:1)

AdBlue by Azotal PLUS (AdBlue containing the reactive agent ReAct SCR Cleaner, compliant with ISO 22241:1)

REGISTRATION NUMBER OF THE SUBSTANCE ACCORDING TO REGULATION 1907/2006 01-2119463277-33-XXXX

1.2. IDENTIFIED INTENDED USE OF THE MIXTURE AND USES ADVISED AGAINST

Product specifically designed for use on internal combustion engines equipped with SCR system for the reduction of NOx from exhaust emissions.

1.3. INFORMATION ON THE SAFETY DATA SHEET SUPPLIER

Company: ..... **Azotal S.p.A** – Viale Papa Giovanni XXIII, 94/D - 24121 Bergamo
Administration and production site:
via delle Salde - 26041 Casalmaggiore (CR)
Tel.0375-201301 (from 8:00 to 17:30 ; Monday to Friday)

Person responsible for the safety data sheet: **info@azotal.it**

1.4. EMERGENCY NUMBER

Not required as the preparation is not classified as hazardous.
For emergency contact the National Poisons Information Centre: **Ospedale NIGUARDA – tel. 02 66101029 (available 24 hours)**

2. HAZARD IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE/MIXTURE (according to EC Regulation 1272/2008 CLP)

Not classified	

This product is not classified as hazardous according to EC Regulation no.1272/2008 and following amendments.

2.2 LABEL ELEMENTS

Hazard pictographs:	
Hazard class:	None
Hazard category:	None
Hazard indication:	None
Label warning:	None

2.3 OTHER HAZARDS

According to Annex XIII of EC Regulation 1907/2006 no PBT and vPvB assessments have been performed because the solution constituents are inorganic.

3. COMPOSITION AND INFORMATION ABOUT INGREDIENTS

3.1 SUBSTANCES: Aqueous urea solution

Name	Conc.	CAS	EINECS	GHS	REACH registration	CLP classification
Urea	32.5 %	57 -13 -6	200 -315 -5	n.a.	01 -2119463277 -33	Not classified as hazardous
Water	67.5 %	7732 -18 -5	231 -791 -2	n.a.	n.a.	Not classified as hazardous

- Chemical name..... Urea
- Synonyms..... carbamide, carbonyldiamide
- Description..... Organic nitrogen compound
- Molecular weight..... 60.06
- Formula..... CH_4N_2O

3.2 MIXTURES: not applicable

4. FIRST AID MEASURES

EXPOSURE PATHWAYS		INHALATION	SKIN CONTACT	EYE CONTACT	INGESTION
4.1 Description of first aid measures		Unlikely event. Development of ammonia vapours if the product decomposes at high temperature	Remove contaminated clothing. Rinse the area with water	Flush eyes immediately with running water, keeping the eyelids open and slowly rotating the eyeballs, if possible.	In case of complaints seek medical attention
4.2 **Main symptoms and effects**	acute	Not identified	Possible irritations	Burning and pain in eyes	Gastrointestinal disorders
	delayed	Not identified	Not identified	Not identified	Not identified
4.3 Need of immediate medical advice or special treatment		In case of general discomfort seek medical advice. Treat symptomatically			

5. FIRE-FIGHTING MEASURES

The solution is not combustible (see also point 10). If the substance is involved in a fire, cool the containers exposed to fire with water spray. Operate from a safe upwind position

5.1 Extinguishing media	Suitable extinguishing media: Foam, CO2, chemical powder, water spray Unsuitable extinguishing media: None.
5.2 Special hazards arising from the substance or mixture	In case of decomposition at high temperature, ammonia vapours may form which are irritant to skin, eyes and respiratory system.
5.3 Recommendations for firefighters	Wear personal protective equipment complete with eye and respiratory protection (breathing apparatus); in compliance with European standards EN469.

6. MEASURE IN CASE OF ACCIDENTAL RELEASE

6.1 Personal precautions, protective equipment and emergency procedures.	For those not directly involved: None. For those directly involved: Avoid contact with skin and eyes and protect the respiratory tract. Wear personal protective clothing and suitable gloves (chemical resistant gloves, e.g. butyl, latex, nitrile)
6.2 Environmental precautions	Limit spillages using absorbent material (sand, sawdust). Do not allow the product to enter storm drains, surface and ground water.
6.3 Methods and materials for containment and cleaning up.	If possible, recover the product and reuse it as a fertilizer, after diluting it. Otherwise collect it with absorbent material and place it in suitable containers for disposal as waste material.
6.4 References to other sections	See sections 8 and 13.

7. HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

General instructions and warnings for handling and storage of chemicals.

7.1.1. Recommendations for safe handling. Avoid mixing with basic products.
Provide suitable containment systems to avoid environmental pollution. Provide storage facilities with appropriate containment systems to prevent soil and water pollution in case of spillage.

7.1.2. General recommendations on occupational hygiene: Do not eat, drink or smoke in working areas. Wash hands in case of accidental contact and remove contaminated clothing and PPE before entering the refreshment areas. Avoid inhalation of any vapours/aerosols, contact with skin and eyes and ingestion.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING INCOMPATIBILITIES

Storage conditions	In case of stationary tanks observe project conditions. Store in cool, ventilated areas away from potential heat sources. Protect containers from physical damages. Do not use open flame. Storage temperature: -11÷ 30 °C Protect from temperature below -11 °C. Low temperature or frost cause product crystallisation, but do not damage it. Protect from temperature above 35 °C.
Incompatible materials	Carbon steel, iron, tin, copper alloys, zinc, (brass, bronze), nickel, aluminium, magnesium. Glass. Avoid the product coming into contact with combustible substances and/or preparations, sodium nitrite, potassium permanganate, oxidising substances. The product reacts with sodium or calcium hypochlorite and forms nitrogen trichloride (explosive compound), P2C15 and nitrosylperchlorate.
Suitable materials	Suitable materials: High Density Polyethylene (HDPE), Low Density Polyethylene (LDPE), Stainless Steel AISI 304, 304L, 316, 316L

7.3. SPECIAL END USES
None

8. EXPOSURE CONTROL / PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

8.1.1 Limit values: TLV-TWA: n.a. STEL/C: n.a.
8.1.2 Monitoring: Periodic medical checks upon medical advice according to Legislative Decree no. 81/2008.
8.1.3 Formation of environmental contaminants: none
8.1.4. Report on chemical safety: n.a.
8.1.5 Control Banding: not required

8.2. EXPOSURE CONTROLS

8.2.1. Appropriate technical controls
If the product is handled in compliance with good technical practice, no special technical controls are required.
8.2.2. Individual protection measures, such as personal protective equipment.
Recommendations: operate in ventilated areas, store everyday clothing separated from work clothing, do not smoke, eat, or drink except in permitted areas, remove clothing contaminated by the substance and shower in case of contamination of body and clothing.
8.2.2.1. Eye/face protection:
Acid-proof safety goggles (EN166) splash-proof visor
8.2.2.2. Skin/hand protection
Wear rubber, nitrile, butyl, latex gloves with appropriate chemical resistance, contact PPE supplier and ask for compatibility of PPE with the substance.
Wear overalls and safety shoes with adequate resistance to chemical agents, contact PPE supplier and ask for compatibility of PPE with the substance.
8.2.2.3. Respiratory protection:
None

8.2.3. Environmental exposure controls:
Prevent product from contaminating soil and/or surface water and/or groundwater.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	
• Physical state at 20°C	Clear liquid
• Colour	Colourless
• Odour	Odourless or slightly ammonia
pH	9÷ 10
Freezing point	approx. -11 ° C
Boiling point/range	above 100° C
Flammability point (liquids)	Not applicable
Evaporation rate	Not available
Flammability - Flammability limits	Not applicable
Vapour pressure	23mbar at 20°C
Vapour density	Not available
Relative density (d_{20})	1,085 ÷ 1,095g/cm^3
Solubility	
Water solubility	Infinity
Liposolubility	Insoluble in most organic solvents
Partition coefficient n-octanol/water	Log P_{ow} = -2,97 (ref. to urea as is)
Self-flammability (self-ignition)	Not applicable
Decomposition temperature	~ 130°C
Viscosity	approx. 1.4mPa · s at 25°C
Explosive properties	Not applicable
Oxidising properties	Not applicable

9.2. More information:

Heat conductivity	approx. 0.570 W/m · K at 25°C
Specific heat	approx. 3.40 kJ/kg · K at 25°C
Surface tension	Min. 65 mN/m

10. STABILITY AND REACTIVITY

10.1. Reactivity
None.

10.2. Chemical stability
Under normal temperature and pressure conditions required for storage and handling the product is stable.

10.3. Possibility of hazardous reactions
None

10.4. Conditions to avoid
Heating of the solution above 30°C. Direct exposure to sunlight. Avoid contamination from any source.

10.5. Incompatible materials
Carbon steel, iron, tin, copper alloys, zinc, (brass, bronze), nickel, aluminium, magnesium. Glass.
DO NOT MIX WITH DIESEL

10.6. Hazardous decomposition products
The product is chemically stable; if the solution is heated to decomposition, toxic gases (NOx, ammonia) may develop.

11. TOXICOLOGICAL INFORMATION

11.1.1/2/3/4/5/6 Information on toxicological effects:					
Effect	Test	Species	Dose	Exposure	Conclusion
Acute toxicity (ref. to urea as is)	DL50 Oral	Rat	8471 mg/kg	-	Non toxic
Corrosion /skin irritation (ref. to urea as is)	Skin	Men	22 mg	72h Observation: 72h	Non-irritant
Severe eye damage/ Severe eye irritation	-	-	-	-	Not eye-irritant
Respiratory and skin sensitisation	-	-	-	-	No evidence reported
Germ cell mutagenicity	-		-		No evidence reported
Carcinogenicity	-	-	-	-	No evidence reported
Reproductive toxicity	-	-	-	-	No evidence reported
Specific target organ toxicity (STOT) single exposure	-	-	-	-	No toxicity data applicable
Specific target organ toxicity (STOT) repeated exposure	-	-	-	-	No toxicity data applicable
Aspiration hazard	-	-	-	-	No toxicity data applicable
Note: based on available data the classification criteria are not met.					

11.1.7 Information on likely exposure pathways:		
Exposure	Potential acute health effects	Symptoms
Eye contact:	Contact with eyes may cause burning and irritation	Pain, irritation
Skin contact:	Contact with the skin may cause irritation	Slight skin irritation
Inhalation:	not applicable	---
Ingestion:	may cause gastrointestinal symptoms	Pain, abdominal cramps

11.1.8 Symptoms related to physical, chemical and toxicological characteristics:
No evidence reported

11.1.9 Immediate, delayed and chronic effects from short and long term exposure:

Sensitisation:	no evidence reported.
Carcinogenicity:	no evidence reported.
Mutagenesis:	no evidence reported.
Reproductive toxicity:	no evidence reported.

11.1.10 Interactive effects: n.a.
11.1.11 Absence of specific data: n.a.
11.1.12 Information on mixtures compared to information on substances: n.a.
11.1.13 Other information: n.a.

12. ECOLOGICAL INFORMATION

Use according to good technical practice and avoid release the product into the environment (see also section 6, 7, 13, 14, 15).

12.1. Toxicity

Ichthyotoxicity (DIN 38412 part 15) .....: Leuciscus idus/CL50: > 6.810 mg/l

Aquatic invertebrates Daphnia magna/CL50 (48 h) ……..…: > 10.000 mg/l Data from bibliography.

Aquatic plants Scenedesmus quadricauda/CE10 (8 d) .....: > 10.000 mg/l Data from bibliography.

Microorganisms / Effects on activated sludge Pseudomonas putida / CE10 (16 h) :> 10.000 mg/l Data from bibliography.

The product shows low intrinsic toxicity to aquatic life, but may cause damage in case of significant quantities due to important oxygen demand.

12.2. Persistence and degradation

Disposal considerations: Method of analysis: DOC reduction. Degree of elimination: 96 % (16 d)

Assessment: Biodegradable.

Rate of degradation caused by bacteria (values refer to urea as is):	at 20°C		at 2°C	
	max. mg/lxh	average. mg/lxh	max. mg/lxh	average. mg/lxh
	11.6	10.9	4.0	3.2

12.3. Bioaccumulation potential

The product does not show any bioaccumulation phenomena

12.4. Mobility in soil

Distribution: log P(oct)= -2,97 (data related to urea as is)

12.5. Results of PBT and vPvB assessment.

Assessment not required

12.6. Other adverse effects.

No effects known

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHOD

Description and handling of residues	Surplus or residues can be used as liquid fertilizer after dilution with water.
Suitable disposal methods	Recover as much of the product as possible for use as fertiliser. If contaminated with other substances, follow the applicable regulations on waste disposal.
European Waste Catalogue	06 10 99 waste not otherwise specified

14. TRANSPORT INFORMATION

The substance is not covered by ADR/ RID – IMDG – ICAO/IATA regulations.

	A.D.R. / R.I.D	IMDG	ICAO
14.1 UN number:	-----	-----	-----
14.2 UN shipping name:	-----	-----	-----
14.3 Transport hazard class(es)	-----	-----	-----
14.4 Packaging group:	-----	-----	-----
14.5 Environmental hazards	-----	-----	-----
14.6 Special precautions for users:	Special precautions during transport inside and/or outside the company: label all containers (including samples for analysis) according to the applicable regulations on classification, labelling and packaging of substances/mixtures.		
14.7 Transport in bulk according to Annex II of MARPOL and the IBC code	------	**Urea solution** Liquid bulk cargo. Type of vessel: 3 Pollution category: Z	------
Labels	-----	-----	-----
Transport category	-----	-----	-----
Tunnel restriction code	-----	-----	-----
Kemler number	-----	-----	-----
EMS number	-----	-----	-----
Marine pollutant:	-----	-----	-----

15. REGULATORY INFORMATION

15.1 Health, safety and environmental regulations and legislation specific for the substance or mixture

Regulation no. 1907/2006/EC (REACH);
Regulation no. 1272/2008/EC (CLP) and subsequent ATP amendments and integrations;
Regulation(EU) 2015/830
Legislative Decree 81/2008 (Consolidated law on health and safety at work) and subsequent amendments and Directive 2009.161. EU

15.2 Chemical safety assessment

Not required

16. MORE INFORMATION:

Personnel handling the substance/preparation should be previously trained and informed of the chemical risk.

Method for the evaluation of information to determine the classification according to Reg. (EC) 1272.2008.

Classification	Explanation
Not classified	Calculation method

The data and information contained in this sheet correspond to the present state of our knowledge about the product as is, in accordance with the specifications. The user must verify the completeness and suitability of the information in relation to the intended use and must take additional measures in case of special or exceptional conditions. The user is not exempt from complying with all legal requirements for the product, including those relating to environmental hygiene and safety at work.

- Main bibliographic sources used:

- ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
- SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS – 10° Ed. – Van Nostrand Reinold
- ACGIH - Threshold Limit Values - 2010 edition
- ESIS – European chemical Substances Information System – Joint Research Centre – Commission of the European Communities

Acronyms and abbreviations
ADN: European Agreement concerning the international Carriage of Dangerous Goods by Inland Waterways (accord européen relative au transport international des marchandises dangereuses par voies de navigation intérieures)
ADR: European Agreement concerning the international Carriage of Dangerous Goods by Road (accord européen relative au transport international des marchandises dangereuses par voies de navigation intérieures)
ACGIH: American Conference of Governmental Industrial Hygienists
ATP: Adaptation to Technical Progress
CL 50: Lethal concentration per 50% of Individuals (Lethal Concentration 50)
CLP: Classification, Labelling and Packaging
CSR: Chemical Safety Report
DL 50: Lethal dose for 50% of Individuals (Lethal Dose 50)
DNEL: Derived no-effect level
DPI: Personal Protective Equipment
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG code: International Maritime Dangerous Goods code
PBT: Persistent, bioaccumulative and toxic substances
PNEC: Predicted no-effect concentration
RID: Regulation concerning the International Carriage of Dangerous Goods by Rail (Règlement concernent le transport International ferroviaire des marchandises Dangereuses)
STEL: short term exposure limit
TLV: threshold limit value
TWA: Time Weighted Average
EU: European Union
vPvB: Very persistent very bioaccumulative substances

Decoding:
N.A. = Not available
N.A. = Not applicable (or T.I.= Technically impossible).
Sections and paragraphs revised from the last edition: Sections 1, 7, 13.

According to Article 32 REACH, this INFORMATION SHEET replaces the 16-point Safety Data Sheet which is required for the supply of substances/mixtures classified as hazardous.
This sheet complies with Regulation (EU) 2015/830.