

SAFETY DATA SHEET

according to according to UK REACH Regulation

AdBlue[®]

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

1.1. Product identifier

Product identifier : Water solution of urea, AUS 32

Registration number REACH : 01-2119463277-33-0275

Trade name : AdBlue[®]

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

Identified uses : The product is a NO_x-gases reduction agent used in the selective catalytic reduction (SCR) in motor vehicles with a diesel engine.

Unadvisable uses : Not recommended for other uses than is mentioned.

1.3. Details of the supplier of the safety data sheet

Supplier : **GreenChem Holding B.V.**
Gravinnen van Nassauboulevard 95
4811 BN BREDA – Netherlands
Tel. +31 (0)76 – 581 27 27
Email: msds@greenchem-adblue.com

Representative Office UK : **GreenChem Solutions Ltd**
Suite 3 Midshires House, Midshires
Business Park, Smeaton Close
Aylesbury, HP19 8HL; United Kingdom
Tel. +44 (0)1296 678548
Email: msds@greenchem-adblue.com

e-mail address of competent person responsible for the safety data sheet : msds@greenchem-adblue.com

1.4. Emergency telephone number

24 hours service – applicable to UK only. : 111 or 999

National Poisons Information Service : NPIS do not receive calls from the general public

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance is not classified as dangerous according to the Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

2.2. Label elements : None.

2.3. Other hazards : The product contains neither SVHC, PBT, and vPvB substances nor endocrine disruptors in concentration $\geq 0.1\%$ wt.

SECTION 3: Composition/information on ingredients

3.1. Substances

Aqueous solution (32.5%) of urea

CAS	EC	Registration Number	Classification	Content (%)
Urea				
57-13-6	200-315-5	01-2119463277-33-0275	XXX	32.5
Impurities:				
Biuret				
108-19-0	203-559-0	XXX	XXX	≤ 0.3

Remark: Complete wording of H-phrases is stated in Section 16.

3.2. Mixtures

The product is a substance.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation : Take out the exposed person to the fresh air.

Skin contact : Wash skin with warm water and soap.

Eye contact : Wash out the eye with plenty of clean water 15 min., seek for medical care.

Ingestion : Drink ca. 2 dcl lukewarm water, do not induce vomiting and seek for medical care.

Clothing exposure : Remove the exposed clothing and shoes.

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4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Aqueous solution of urea has no flammable properties.

Suitable extinguishing media : Extinguishing media to be selected upon surrounding fire.

Unsuitable extinguishing media : Flammable materials and extinguishing media which cannot be used for surrounding fire.

5.2. Special hazards arising from the substance or mixture

: When AdBlue is stored in the GreenChem system tank and the system is in danger of fire or extreme heat, pressure will rise and the vessel may burst. In case of fire, immediately isolate the area by evacuating all personnel from the incident vicinity. Do not take any actions that could pose personal risk or for which you are not trained. Always proceed in accordance with directions given in valid emergency plans.

Hazardous combustion products : Combustion product may contain: Carbon dioxide, nitrogen oxides, ammonia.

5.3. Advice for firefighters

: Irritating substances may be released in thermal combustion, thus a self-contained breathing apparatus is necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

: Use personal protective equipment during handling with the product (see Section 8). Avoid contact with eyes, skin and clothing.

6.2. Environmental precautions

: Prevent release to water resources, sewerage and soil. The product is not classified as hazardous for environment.

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- 6.3. Methods and material for containment and cleaning up** : In case of spilling, rinse the area with plenty of water. Dispose of the remains in a controlled way by flushing them into wastewaters brought to a sewage treatment plant. Depending on the scale and nature of the product contamination, the product may be used for agricultural purposes or disposed of in another controlled way (sewage treatment plant). Dispose of the waste as specified in Section 13.
- 6.4. Reference to other sections** : For more information about protective equipment see Section 8.
For more information about the disposal of substance, see Section 13.

SECTION 7: Handling and storage

Handling and storage is performed only with respect to the requirements of ISO 22241-3.

- 7.1. Precautions for safe handling** : Provide adequate ventilation during manipulation with product and avoid contact with skin and eyes using personal protective equipment. Follow the rules of safe handling of chemicals and basic hygiene habits. Avoid contamination of the product.
- 7.2. Conditions for safe storage, including any incompatibilities** : In order to avoid crystallization or hydrolysis in the urea solution, store under common conditions (optimally up to 25 °C).
- Suitable material for storage : Alloy steels, various plastics, as well as metal tanks with plastic coating.
- Unsuitable material for storage : Plain steels, copper, aluminium, alloys containing copper and aluminium, galvanized steels.
- 7.3. Specific end use(s)** : Specific end use is given in the directions for use on the sticker on the product packaging or in the product documentation – see Section 1.2

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values according to Directive 2000/39/EC, as amended:
 No exposure limits have been determined for this product.

Exposure limit for hazardous decomposition products:

CAS	Substance name	8 hours		Short time		Note
		mg/m ³	ppm	mg/m ³	ppm	
7664-41-7	Ammonia, anhydrous	14	20	36	50	-

Limit values of biological exposure tests indicators are not specified in Directive no. 98/24/EC, as amended.

DNEL value (urea EC 200-315-5) for workers		
Exposure, effects	Route	DNEL
Acute/short term, systematic effects	Dermal	580 mg/kg bw/d
Acute/short term, systematic effects	Inhalation	292 mg/m ³
Long-term-systematic effects	Dermal	580 mg/kg bw/d
Long-term-systematic effects	Inhalation	292 mg/m ³
DNEL value (urea EC 200-315-5) for general population		
Acute/short term, systematic effects	Dermal	580 mg/kg bw/d
Acute/short term, systematic effects	Inhalation	125 mg/m ³
Acute/short term, systematic effects	Oral	42 mg/kg bw/d
Long-term-systematic effects	Dermal	580 mg/kg bw/d
Long-term-systematic effects	Inhalation	125 mg/m ³
Long-term-systematic effects	Oral	42 mg/kg bw/d
PNEC value (urea EC 200-315-5)		
PNEC	Value	Assessment factor
Aqua (fresh water)	0.047 mg/l	1 000
Aqua (marine water)	0.047 mg/l	-

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Ensure sufficient local ventilation.

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8.2.2 Individual protection measures, such as personal protective equipment

Regulation (EU) No 2016/425 introduce all personal protective equipment used.

Eye/face protection	:	Use protective goggles with side shields when handling the product (e.g. transferring).
Skin protection	:	Wear suitable protective gloves and shoes.
Hand protection	:	Hand protection: Protective gloves. The breakthrough time: > 8 hours Suitable glove material: PVC, natural rubber (latex), butyl rubber, nitrile rubber. Material to be avoided: leather.
Respiratory protection	:	In case of insufficient ventilation system, use effective respirator, mask with ammonia-proof filter.
Thermal hazards	:	Information is not available.

8.2.3 Environmental exposure controls

Prevent uncontrolled release to environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Clear, colourless
Odour	:	Slight ammonia-like
Melting point/freezing point	:	Information is not available
Boiling point or initial boiling point and boiling range	:	Information is not available
Flammability	:	Information is not available
Lower and upper explosion limit	:	Information is not available
Flash point	:	Information is not available
Auto-ignition temperature	:	Information is not available
Decomposition temperature	:	Information is not available
pH	:	Max. 10 (10% aqueous liquid)
Kinematic viscosity	:	Information is not available
Solubility	:	Miscible in water
Partition coefficient n-octanol/water (log value)	:	Information is not available
Vapour pressure	:	Information is not available
Density and/or relative density	:	1,087 – 1,093 kg/m ³
Relative vapour density	:	Information is not available
Particle characteristics	:	Not applicable (liquid)

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9.2. Other information

Dynamic viscosity	:	Approx. 1.4 mPa.s at 25 °C
Molecular weight	:	60.06 kg/kmol
Thermal conductivity (at 25 °C)	:	Approx. 0.57 W/m.K
Specific heat (at 25 °C)	:	Approx. 3.4 kJ/kg.K
Surface tension	:	min 65 mN/m
Refractive index (at 20 °C)	:	1.3814 – 1.3843
Crystallization point	:	-11.5 °C

SECTION 10: Stability and reactivity

10.1. Reactivity	:	Stable under recommended storage and handling conditions (see Section 7, handling and storage).
10.2. Chemical stability	:	Stable under recommended storage and handling conditions (see Section 7, handling and storage).
10.3. Possibility of hazardous reactions	:	When heated, decomposition of products.
10.4. Conditions to avoid	:	Heating causes thermal decomposition and the gases formation.
10.5. Incompatible materials	:	Not know.
10.6. Hazardous decomposition products	:	NO _x , NH ₃ , CO ₂

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	:	No information about acute toxicity for product available. For urea (EC 200-315-5): Oral (rat) LD ₅₀ 14,300 mg/kg bw (male), OECD Guideline 401
Skin corrosion/irritation	:	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	:	Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation	:	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	:	Based on available data, the classification criteria are not met.
Carcinogenicity	:	Based on available data, the classification criteria are not met.

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Reproductive toxicity	:	Based on available data, the classification criteria are not met.
STOT-single exposure	:	Information is not available.
STOT-repeated exposure	:	Information is not available.
Aspiration hazard	:	Information is not available.

11.2. Information on other hazards

Endocrine disrupting properties	:	The product contains no substances functioning as endocrine disruptors according to REACH, Art. 57(f), or to Commission Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 in concentrations $\geq 0.1\%$ wt.
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SECTION 12: Ecological information

12.1. Toxicity	:	The product is not classified as hazardous for environment.
For urea (EC 200-315-5)		
Fish:		
Short-term: LD ₅₀ :	6,810 mg/l	
Aquatic invertebrates:		
EC ₅₀ /LC ₅₀ :	10,000 mg/l	
Algae and aquatic plants:		
EC ₁₀ /LC ₁₀ (NOEC):	47 mg/l	
12.2. Persistence and degradability	:	It is considered readily biodegradable material.
12.3. Bioaccumulative potential	:	Biodegradation, in view of the main component (urea) is not assumed.
12.4. Mobility in soil	:	The product is soluble in water.
12.5. Results of PBT and vPvB assessment	:	The substance does not meet the criteria for PBT and vPvB.
12.6. Endocrine disrupting properties	:	The product contains no substances functioning as endocrine disruptors according to REACH, Art. 57(f), or to Commission Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 in concentrations $\geq 0.1\%$ wt.
12.7. Other adverse effects	:	It is possible to contaminate the surface and ground waters due to improper

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manipulation.

SECTION 13: Disposal considerations

- 13.1. Waste treatment methods** : Depending on the degree and character of contamination, the product is suitable to use for agricultural purposes or for disposal under control by authorized waste contractors (sewage treatment plant). Empty container damaged during the usage has to be stored at the designated place and disposed by combustion in a solid waste incineration plant.
- Legal regulations relating to waste : Directive on waste 2006/12/EC and 2008/98/EC.
Disposal must be made according to official regulations.

SECTION 14: Transport information

Product is not classified as dangerous good for transport according to ADR/RID/IMDG Code.

- 14.1. UN number or ID number** : Unassigned
14.2. UN proper shipping name : Unassigned
14.3. Transport hazard class(es) : Unassigned
14.4. Packing group : Unassigned
14.5. Environmental hazards : AdBlue[®] is not classified as environmentally hazardous substance according to the ADR/RID/IMDG Code.
14.6. Special precautions for user : Transported in insulated tank trucks or palletized plastic tanks (IBC). Materials suitable for these tanks are alloy steels, various plastics, as well as metal tanks with plastic coating.
Plain steels, copper, aluminium, alloys containing copper and aluminium, galvanized steels must not be used.
14.7. Maritime transport in bulk according to IMO instruments : Unassigned

SECTION 15: Regulatory information

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

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Restrictions on the substances or mixtures according to Annex XVII of the REACH : None
Candidate list (SVHC list of substances) – REACH article 59 : None
Substances subject to authorization (Annex XIV of the REACH Regulation) : None
SEVESO (prevention of major accidents) : None

Regulation (EC) of the European Parliament and of the Council No 1907/2006 on Registration, evaluation, authorisation and restriction of chemicals (REACH)
Regulation (EC) of the European Parliament and of the Council No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)
Directives 80/68/EEC, 90/656/EEC, 91/692/EEC, on waters
Directive 96/62/EEC, on air
Directive 2000/39/EC, Directive no. 98/24/EC – exposure limit
Directive 91/383/EEC - occupational safety at the workplace
EN ISO 22241 parts 1 to 5.

The recipient of the substance or mixture must take measures following the legal status of the substance or mixture (including substances contained in the mixture) in compliance with domestic legislation of the particular member state, and to list those legal regulations here.

15.2. Chemical safety assessment : The chemical safety assessment has been performed for the main ingredient of the product.
Urea does not meet the criteria for hazardous substance classification within the meaning of Regulation (EC) No. 1272/2008 and is assessed to be neither PBT nor vPvB, and therefore exposition assessment is not required, incl. the preparation of exposure scenarios (Art. 14 (4) of Regulation (EC) No. 1907/2006).

SECTION 16: Other information

16.1. Used information sources : Available information form DUSLO, a.s.
16.2. Instructions for the training : Instructions for the manipulation with product shall be included into the educational system on the work safety (initial training, training at the workplace, repeated trainings) according to the specific conditions at the workplace.

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- 16.3. List of relevant hazard statements and precautionary statements used in the SDS : None.
- 16.4. Changes executed within the revision : Revision: 16 Apr 2020 / version 12.2
Correction of subsection 1.3
Revision: 14 Sep 2022 / version 13.0
Formal modifications to the form acc. to Commission Regulation (EU) No 2020/878
- 16.5. Legend to abbreviations and acronyms : CAS - Chemical Abstract Service
ES - European Community number of a chemical for EINECS, ELINCS and NLP inventories
PBT - Persistent, Bioaccumulative and Toxic substance
vPvB - Very Persistent and Very Bioaccumulative
LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose)
LC₅₀ - Lethal Concentration to 50% of a test population
EC₅₀ - Half maximal effective concentration
SVHC - Substances of Very High Concern
DNEL - Derived No Effect Level
PNEC - Predicted No Effect Concentration(s)

16.6. Other information

All information given in this Safety Data Sheet correspond to our knowledge at the time of the revision performed. The information only describes the product with respect to safe handling; it is not quality specification and do not establish the law.

The information given in this Safety Data Sheet is valid only for this material and under no circumstances it will be valid if this SDS is used in combination with another material or process not given in the text of this SDS. Information contained herein is based on our best knowledge and belief at the time of its issuing.

The information given herein is intended only as direction for safe handling with the product, its use(s), storage, processing, transport, and disposal, and does not provide any warranty or quality guarantee. This Safety Data Sheet contains only information relating to the safety and does not substitute information on the product or its specification.