

## Aqueous Urea Solution

Version 2

Revision Date 07.05.2014

Print Date 09.05.2014

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### Product information

Trade name : AdBlue®

Synonyms : Aqueous Urea Solution

Use of the Substance/Mixture : For reducing of nitrogen oxides in exhaust gases of Diesel engines (SCR-technology).

Supplier : Borealis L.A.T GmbH  
St.-Peter-Strasse 25, 4021 Linz, Austria  
Telephone: +43 732 6915-0

E-mail address : [product.safety@borealisgroup.com](mailto:product.safety@borealisgroup.com)

### 2. HAZARDS IDENTIFICATION

#### GHS Classification (1272/2008 (EC))

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

#### Classification (67/548/EEC, 1999/45/EC)

Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Aqueous solution

#### Components

Chemical Name	CAS-No. EC-No. Registration number	Concentration [%]
urea	57-13-6 200-315-5 01-2119463277-33	>= 31,8
water	7732-18-5 231-791-2	<= 68,2

AdBlue is a registered trademark of Verband der Automobilindustrie e.V. (VDA).

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### 4. FIRST AID MEASURES

- General advice : No specific instructions needed.
- Inhalation : Move to fresh air.  
If symptoms persist, call a physician.
- Skin contact : Wash off with soap and plenty of water.  
Take off contaminated clothing and wash before reuse.  
If skin irritation persists, call a physician.
- Eye contact : Rinse cautiously with water for several minutes.
- Ingestion : Rinse mouth with water.  
Do NOT induce vomiting.  
If conscious, drink plenty of water.

#### Notes to physician

- Symptoms : Inhalation:  
Cough  
Shortness of breath  
Sore throat
- Skin contact:  
Redness
- Eye contact:  
Redness
- Ingestion:  
Convulsions  
Headache  
Nausea  
Vomiting
- Treatment : Treat symptomatically.

### 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Water mist  
Alcohol-resistant foam
- Unsuitable extinguishing : High volume water jet

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media	
Specific hazards during firefighting	: The product itself does not burn. Burning produces irritant fumes.
Special protective equipment for firefighters	: Wear self-contained breathing apparatus and protective suit.
Further information	: Standard procedure for chemical fires.

### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	: Use personal protective equipment. Material can create slippery conditions. Use non-slip safety shoes in areas where spills or leaks can occur. Avoid inhalation of vapour or mist. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation, especially in confined areas.
Environmental precautions	: Prevent product from entering drains.
Methods for cleaning up	: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. After cleaning, flush away traces with water.

### 7. HANDLING AND STORAGE

#### Handling

Advice on safe handling	: Avoid contact with skin, eyes and clothing.
Advice on protection against fire and explosion	: No special protective measures against fire required.

#### Storage

Requirements for storage areas and containers	: Suitable materials for containers: Highly alloyed austenitic Cr-Ni-steels and Cr-Ni-Mo-steels (acc. to DIN EN 10088-1 to 3; e.g. 1.4541 and 1.4571) Titanium HDPE Polypropylene
	: Unsuitable container: Copper alloys Copper Unalloyed steels

## Product safety information sheet

according to Regulation (EC) No. 1907/2006, Article 32

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Zinc-coated steel

: Store at room temperature.  
Protect from sunlight.

Advice on common storage : Do not store together with oxidizing and acidic materials.  
Do not store or transport together with nitrites and salts containing nitrates.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

##### Components with workplace control parameters

DNEL

- : End Use: Workers  
Exposure routes: Skin contact  
Potential health effects: Acute systemic effects  
Value: 580 mg/kg bw/d  
Urea
- : End Use: Workers  
Exposure routes: Inhalation  
Potential health effects: Acute systemic effects  
Value: 292 mg/m<sup>3</sup>  
Urea
- : End Use: Workers  
Exposure routes: Skin contact  
Potential health effects: Long-term systemic effects  
Value: 580 mg/kg bw/d  
Urea
- : End Use: Workers  
Exposure routes: Inhalation  
Potential health effects: Long-term systemic effects  
Value: 292 mg/m<sup>3</sup>  
Urea
- : End Use: Consumers  
Exposure routes: Skin contact  
Potential health effects: Acute systemic effects  
Value: 580 mg/kg bw/d  
Urea
- : End Use: Consumers  
Exposure routes: Inhalation  
Potential health effects: Acute systemic effects  
Value: 125 mg/m<sup>3</sup>  
Urea
- : End Use: Consumers  
Exposure routes: Ingestion  
Potential health effects: Acute systemic effects  
Value: 42 mg/kg bw/d

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- Urea  
: End Use: Consumers  
Exposure routes: Skin contact  
Potential health effects: Long-term systemic effects  
Value: 580 mg/kg bw/d
- Urea  
: End Use: Consumers  
Exposure routes: Inhalation  
Potential health effects: Long-term systemic effects  
Value: 125 mg/m<sup>3</sup>
- Urea  
: End Use: Consumers  
Exposure routes: Ingestion  
Potential health effects: Long-term systemic effects  
Value: 42 mg/kg bw/d
- Urea

- ||| PNEC : Fresh water  
Value: 0,47 mg/l  
Urea

### Engineering measures

Provide adequate ventilation.

### Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection : In case of contact through splashing:  
Gloves
- Eye protection : Safety goggles
- Skin and body protection : Lightweight protective clothing
- Hygiene measures : Keep away from food and drink.  
When using do not eat, drink or smoke.  
Wash hands before breaks and at the end of workday.  
Shower or bathe at the end of working.  
Take off immediately all contaminated clothing.  
Keep working clothes separately.

### Environmental exposure controls

- General advice : Prevent product from entering drains.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance

Form : liquid  
Colour : colourless

#### Safety data

Flammability (solid, gas) : not auto-flammable  
Explosive properties : Not explosive  
pH : 8,8  
Melting point : -11,5 °C  
Density : 1,090 g/cm<sup>3</sup>  
Water solubility : soluble  
Viscosity, dynamic : 1,4 mPa.s

### 10. STABILITY AND REACTIVITY

Reactivity : Thermal decomposition from ~ 30°C, with formation of ammonia.  
Materials to avoid : Nitrates  
Nitrites  
Strong oxidizing agents  
Strong acids  
Base metals  
Hazardous decomposition products : Ammonia  
Thermal decomposition : > 30 °C  
Hazardous reactions : Violent hydrolysis at high temperatures.  
Risk of burst of containers.

### 11. Toxicological information

#### Information on toxicological effects

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### **Product**

Acute oral toxicity	: LD50: 14.300 mg/kg, rat, OECD Test Guideline 401, Test substance: Urea
Acute inhalation toxicity	: no data available
Acute dermal toxicity	: study scientifically unjustified
Skin corrosion/irritation	: rabbit, OECD Test Guideline 404, Test substance: Urea, No skin irritation
Serious eye damage/eye irritation	: rabbit, OECD Test Guideline 405, Test substance: Urea, No eye irritation
Respiratory or skin sensitisation	: No known effect.
Germ cell mutagenicity	
Genotoxicity in vitro	: Ames test, Result: negative, Test substance: Urea
Assessment	: Not mutagenic in Ames Test.
Carcinogenicity	: rat, Oral, NCI screening study, Test substance: Urea Animal testing did not show any carcinogenic effects.
Reproductive toxicity	: rat, Dose: 500 mg/kg, Oral, Test substance: Urea Lowest observed adverse effect level Based on available data, the classification criteria are not met.
STOT - repeated exposure	: rat, Oral, 365 d, NOAEL: 2.250 mg/kg, NCI screening study, Test substance: Urea, Health injuries are not known or expected under normal use.
Further information	: According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified.

## 12. Ecological information

### **Toxicity**

#### **Product**

Toxicity to fish	: LC50: > 6.810 mg/l, 96 h, Leuciscus idus (Golden orfe), Test substance: Urea
Toxicity to daphnia and other aquatic invertebrates	: EC50: > 10.000 mg/l, 24 h, Daphnia magna (Water flea), static test, Test substance: Urea, Fresh water

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Toxicity to algae : NOEC: 47 mg/l, 192 h, Microcystis aeruginosa, Cell multiplication inhibition test, Test substance: Urea, Fresh water

### Persistence and degradability

#### Product

Biodegradability : 96 %, Result: Readily biodegradable., activated sludge, Exposure time: 16 d, Water, OECD Test Guideline 302B, Test substance: Urea

### Bioaccumulative potential

#### Product

Bioaccumulation : Test substance: Urea, Bioaccumulation not expected: Partition coefficient (n-octanol/water) log Pow < 3.

### Mobility in soil

#### Product

Distribution among environmental compartments : Adsorption/Soil, Medium: Soil, Adsorbs on soil.

### Results of PBT and vPvB assessment

#### Product

Assessment : This mixture contains no substances that are assessed to be a PBT or a vPvB.

### Other adverse effects

#### Product

Additional ecological information : The product is not considered dangerous for the environment.

## 13. DISPOSAL CONSIDERATIONS

Product : Where possible recycling is preferred to disposal or incineration.  
Contact the proper local authorities.  
Do not dispose of together with household waste.  
Dispose of wastes in an approved waste disposal facility.  
Contact manufacturer.



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European waste code:  
06 10 99: wastes not otherwise specified

Contaminated packaging : In accordance with local and national regulations.

### 14. TRANSPORT INFORMATION

Not dangerous goods in the meaning of ADR/RID, ADNR, IMDG-Code, ICAO/IATA-DGR  
Avoid temperatures above 30°C.

### 15. REGULATORY INFORMATION

Chemical Safety Assessment : A Chemical Safety Assessment has been carried out for this substance.  
(Urea)

### 16. OTHER INFORMATION

#### Further information

Other information : Issued in accordance with Article 32 of Regulation (EC) No 1907/2006, and its amendments.

Issuer : Borealis, Group Product Stewardship / Mikaela Eriksson.

Sources of key data used to compile the Safety Data Sheet : Chemical Safety Report, Urea. FARM REACH Consortium, 2014  
International Chemical Safety Card, Urea, 1997  
([http://www.ilo.org/dyn/icsc/showcard.display?p\\_lang=en&p\\_card\\_id=0595](http://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=0595))

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