

according to Regulation (EG) No. 1907/2006

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

### 1.1. Product identifier

Trade Name:

**VAICO AdBlue®**

VAICO No.:

V60-0104, V60-0129, V60-0130, V60-0269, V60-0270

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

Used as the agent in motor industry for purification of exhaust gas from oil engines with the method of Selective Catalytic Reduction (SCR).

### 1.3. Details of the supplier of the safety data sheet

#### 1.3.1. Manufacturer/Supplier

VIEROL AG | Karlstraße 19 | 26123 Oldenburg | Germany

Telefon +49 441 - 210 20-0 | Telefax +49 441 - 210 20-111

### 1.4. Informing department

VIEROL AG | Karlstraße 19 | 26123 Oldenburg | Germany

Telefon +49 441 - 210 20-0 | Telefax +49 441 - 210 20-111

### 1.5. Emergency telephone number

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

Telephone no: + 48 91 317 4201 (24h)

## 2. HAZARDS IDENTIFICATION

### 2.1. Classification of the mixture

According to Regulation (EC) No 1272/2008 and Council Directive 67/548/EWG the mixture is not classified as a dangerous.

#### 2.1.1. Human Health effects

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

### 2.2. Label elements

According to Regulation (EC) No 1272/2008 and Council Directive 1999/45/EC 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.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

- 3.1. **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

### 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 10 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.

### 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.
- 5.2.1. Contact with skin  
 - Skin having contact with a melted material to be washed with a large amount of water.  
 - Provide medical attention.
- 5.2.2. 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.

## 6. ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures**  
Wear suitable protective clothing.
- 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.

## 7. HANDLING AND STORAGE

- 7.1. Precautions for safe handling**  
Avoid contact with skin, eyes and clothes. Near the place of work install protection showers and eyes washers.  
When handling the product wear proper protective clothes and protective gloves.
- 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 a tray delimited with a wall allowing to receive the full volume of tanks or containers.
- 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.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1. Control parameters**  
Values for component: urea

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

<i>Acute - systemic effects</i>	<i>Dermal</i>	<i>580 mg/kg bw/d</i>
<i>Acute - systemic effects</i>	<i>Inhalation</i>	<i>292 mg/m<sup>3</sup></i>
<i>Long-term - systemic effects</i>	<i>Dermal</i>	<i>580 mg/kg bw/d</i>
<i>Long-term - systemic effects</i>	<i>Inhalation</i>	<i>292 mg/m<sup>3</sup></i>

### DNELs for general population

<i>Acute - systemic effects</i>	<i>Dermal</i>	<i>580 mg/kg bw/d</i>
<i>Acute - systemic effects</i>	<i>Inhalation</i>	<i>125 mg/m<sup>3</sup></i>
<i>Acute - systemic effects</i>	<i>Oral</i>	<i>42 mg/kg bw/d</i>
<i>Long-term - systemic effects</i>	<i>Dermal</i>	<i>580 mg/kg bw/d</i>
<i>Long-term - systemic effects</i>	<i>Inhalation</i>	<i>125 mg/m<sup>3</sup></i>
<i>Long-term - systemic effect</i>	<i>Oral</i>	<i>42 mg/kg bw/d</i>

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

<i>PNEC aqua (freshwater)</i>	<i>0.047 g/L</i>
-------------------------------	------------------

- 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

#### Properties of urea solution

<i>Odour</i>	<i>Faint smell of ammonia</i>
<i>Appearance</i>	<i>Transparent liquid</i>
<i>pH</i>	<i>ca 10 (basic reaction)</i>
<i>Freezing point</i>	<i>-10,5 °C</i>
<i>Boiling point</i>	<i>Decomposition in temp. 100 °C</i>
<i>Flammability</i>	<i>Non flammable</i>
<i>Vapour pressure</i>	<i>6,4 kPa (48 mm Hg) in 20 °C</i>
<i>Density</i>	<i>ca 1.09 g/cm<sup>3</sup> in 20 °C</i>
<i>Water solubility</i>	<i>Unlimited</i>
<i>Refractive index</i>	<i>ca 1,383</i>
<i>Oxidising properties</i>	<i>None</i>

#### Properties of mixtures component (urea)

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

### 9.2. Other information

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

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

## 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.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Values for component: urea

<i>Acute toxicity</i>	<i>LD50<sup>3</sup> (oral)</i>	<i>14300 mg/kg bw – rat (Wistar) male/female</i>
<i>Irritation</i>	<i>Skin</i>	<i>not irritating – human, rabbit (New Zealand White), mouse (Nude MF1h)</i>
	<i>Eye</i>	<i>not irritating – rabbit (Vienna White)</i>
<i>Corrosivity</i>	<i>-</i>	<i>Human and animal data show that urea is not corrosive.</i>
	<i>Skin</i>	<i>not sensitizing – naturally present at relatively high concentrations in human skin (up to 1% by weight)</i>
<i>Sensitization</i>	<i>Respiratory</i>	<i>not sensitizing</i>
<i>Repeated dose toxicity</i>	<i>NOAEL<sup>4</sup> (oral)</i>	<i>2250 mg/kg bw/day (rat, mouse)</i>
<i>Mutagenicity</i>	<i>-</i>	<i>Genetic toxicity: negative</i>
<i>Carcinogenicity</i>	<i>NOAEL (oral)</i>	<i>2250 mg/kg bw/day (NCI screening studies in the rat and mouse)</i>
<i>Toxicity for reproduction</i>	<i>LOAEL<sup>5</sup></i>	<i>500 mg/kg bw/day</i>

### 11.2. Other information:

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

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

<sup>5</sup> LOAEL Lowest Observed Adverse Effect Level

## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity

Component of mixture does not fulfill the T criteria.

#### 12.1.1. Values for component: urea

##### **Aquatic compartment (including sediment)**

<i>Short-term toxicity to fish</i>	<i>LC50<sup>6</sup> for freshwater fish: 6810 mg/L</i>
<i>Long-term toxicity to fish</i>	<i>Urea is of inherently low toxicity to fish species: it is a normal product of protein catabolism.</i>
<i>Short-term toxicity to aquatic invertebrates</i>	<i>EC50<sup>7</sup>/LC50 for freshwater invertebrates: 10000 mg/L (Daphnia, freshwater snails and Aedes egypti larvae)</i>
<i>Long-term toxicity to aquatic invertebrates</i>	<i>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.</i>
<i>Algae and aquatic plants</i>	<i>EC10/LC10 or NOEC for freshwater algae: 47 mg/L – bluegreen algae.</i>
<i>Sediment organisms</i>	<i>The very high water solubility of urea and low adsorption additionally indicates very low exposure to sediment organisms.</i>
<i>Other aquatic organisms</i>	<i>No data are available</i>
<i>Toxicity to aquatic microorganisms</i>	<i>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 &gt; 10000 mg/L.</i>

##### **Terrestrial compartment**

<i>Toxicity to soil macro-organisms</i>	<i>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.</i>
<i>Toxicity to terrestrial plants</i>	<i>Low toxicity to plants is predicted: the substance is widely used as a fertilizer and therefore has a beneficial effect on plant growth.</i>
<i>Toxicity to soil micro-organisms</i>	<i>Urea is of inherently low toxicity to microorganisms as it is utilized as a nutrient and nitrogen source.</i>
<i>Toxicity to other terrestrial organisms</i>	<i>No data are available.</i>

#### 12.1.2. Atmospheric compartment

No data are available.

#### 12.1.3. Non compartment specific effects relevant for the food chain (secondary poisoning)

Toxicity to birds	A waiver is proposed on exposure grounds.
Toxicity to mammals	No additional data are available; low toxicity is predicted on a base of the physiological production of urea by mammalian species.

### 12.2. Other information:

<sup>6</sup> LC50 Lethal concentration

<sup>7</sup> EC50 Half maximal effective concentration

### 12.3. Persistence and degradability

Component of mixture does not fulfill the P or vP criteria.

### 12.4. Bioaccumulative potential

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

### 12.5. Mobility in soil

Highly biodegradable in soil and in water.

### 12.6. Results of PBT and vPvB assessment

Component of mixture is neither a PBT nor a vPvB substance.

### 12.7. Other adverse effects

No data.



## 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.

## 14. TRANSPORT INFORMATION

---

### 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.

## 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.

## 16. OTHER INFORMATION

---

Training  
Changes

Employees should be trained in the scope of proper mixture handling. Read the safety data sheet before use.  
Section 1.