

Technical Data Sheet AdBlue®

**AUS 32 Aqueous Urea Solution 32.5 %
NOx-Reducing agent AUS 32 ISO 22241
Automotive Grade Urea (AGU)**

Empirical formula: $(\text{NH}_2)_2\text{CO}$ in aqueous solution

Urea: $(\text{NH}_2)_2\text{CO}$
Molar mass: 60,06 kg/kmol
CAS No.: 57-13-6
EINECS-No.: 200-315-5

Specification:

Characteristics:	Limits		Nominal value	Unit
	Min.	Max.		
Urea content:	31.8	33.2	32.5	% (m/m)
Density at 20°C:	1087.0	1093.0	1090.0	kg/m ³
Refractive index at 20°C:	1.3814	1.3843	1.3829	
Alkalinity as NH ₃ :		0.2		% (m/m)
Biuret:		0.3		% (m/m)
Aldehydes:		5		mg/kg
Insolubles:		20		mg/kg
Phosphate (PO ₄):		0.5		mg/kg
Calcium:		0.5		mg/kg
Iron:		0.5		mg/kg
Copper:		0.2		mg/kg
Zink:		0.2		mg/kg
Chromium:		0.2		mg/kg
Nickel:		0.2		mg/kg
Aluminium		0.5		mg/kg
Magnesium:		0.5		mg/kg
Sodium:		0.5		mg/kg
Potassium:		0.5		mg/kg

The specification meets the requirements of ISO 22241-1:2006-10-15.
Sampling and testing according to the test methods in ISO 22241-2:2006-10-15 referred.

Physical properties:

Aspect: Colourless clear liquid, no or slight smell like ammonia

Viscosity (at 25°C): approx. 1.4 mPa s

Incipient Crystallisation: -11.5°C

Transportation and storage:

Insulated tank road vehicles and plastic tank pallets (IBC) are used for transportation.

To avoid crystal precipitation or hydrolysis of the product, storage and transportation in the temperature range between -5°C and +25° C is recommended.

Prolonged storage at temperatures above 25°C may lead to the decomposition of urea and increase of concentration because of evaporation of water when containers are vented.

Shelf life of AdBlue[®] is significantly dependent on the storage temperature as shown in the following table:

Max. constant storing temperature [°C]	Min. shelf life [Months]
≤ 10	36
≤ 25 ^{a)}	18
≤ 30	12
≤ 35	6
> 35	-- ^{b)}

^{a)} To prevent decomposition of the AdBlue[®], prolonged transporting or storing above 25°C should be avoided.

^{b)} Significant loss of shelf life: check every batch before use.

The main factors taken into account to define the shelf life in the table are the ambient storing temperature and the initial alkalinity of AdBlue[®]. The difference in evaporation between vented and non-vented storing containers is an additional factor.

AdBlue[®] stored under normal conditions as stated above and in containments of suitable materials is stable for at least two years at 20°C.

Completely solidified of AdBlue[®] at temperatures lower than -11°C has an approximately 7 % larger volume than the liquid and, therefore, May cause burst of fully filled containers. Solidified AdBlue[®], which has been warmed up carefully at temperatures not exceeding 30°C will not impaired in quality and can be used as soon as the warmed up solution is free from solids.

In order to avoid excessive temperature rise AdBlue[®] should be protected from sun light.

Highly alloyed steels, Titan, HDPE, PP and Viton are suitable materials in contact with AdBlue[®]. The product is corrosive to steel, iron, nickel and nonferrous metals.

The CEFIC document "AUS 32 – Quality Assurance Guidance Document" provides further information on how to maintain AdBlue[®] quality throughout the distribution chain.

Safety:

AdBlue® as well as crystallized residues of AdBlue® is physiologically harmless.
AdBlue® is classified as not dangerous good.

For safety reasons store and ship AdBlue® strictly separated from nitrites, hypochlorites and salts containing nitrates.

The Product Safety Information Sheet provides further information on product properties, regulations to be respected, and measures required to be taken for the protection of persons and the environment when handling the product.

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