

TECHNICAL DATA SHEET

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue)

Urea based Diesel Exhaust Fluid meeting ISO 22241 & AUS32

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) is an ultra-pure Urea based solution meeting ISO 22241 & AUS32 for use in modern SCR (Selective Catalytic Reduction) exhaust systems in diesel powered engines

Applications

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) can be used in all diesel-powered engine systems requiring an Urea based fluid for the SCR exhaust.

SCR technology reduced emissions of the NOx gases that are produced inside the engine during combustion. This process requires the correct injection of Diesel Exhaust Fluid; a non-toxic, highly purified urea-based solution. Diesel Exhaust Fluid is sprayed into the exhaust system, where it is subsequently hydrolyzed before the catalytic converter breaks down NOx gases into harmless Nitrogen (N₂) and Oxygen (O₂).

SCR Technology is already proven to enable Heavy Duty diesoline powered engines to comply with strict mandatory EURO V legislation which came into effect in 2008.

Performance Features and Benefits

- The use of RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) is the most efficient way to make use of SCR Technology and comply with EPA emission regulations
- Fully compliant with mandatory legislative requirements
- Suitable for light duty and heavy-duty engine types
- Non harmful, non explosive, non toxic, non combustible

Product Use

You will not need to replenish your Diesel Exhaust Fluid tank every time you refuel. Diesel Exhaust Fluid consumption will be approximately 3% of your fuel consumption (for every 300L of fuel consumed, you will require 9L of Diesel Exhaust Fluid).



Only fill Diesel Exhaust Fluid into the marked Diesel Exhaust Fluid DEF tank on the vehicle.

Do not use Diesel Exhaust Fluid which is mixed with other fluids, either diesel, other fuels or water.

Specifications and Approvals

Fully meets ISO 22241 & AUS32

Health & Safety

Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from your Raha Energies representative.

Avoid exposure to the skin, wash any affected areas thoroughly with water.

Protect the Environment

Take used products to an authorised collection point. Do not discharge into drains, soil or water.

Shelf Life

When stored undercover, away from moisture and direct sunlight, this product should be suitable for use for up to one year after the date of manufacture

Chemical Properties:

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) has a weak alkaline reaction. The pH of the solution at the production site is of 9.0 to 9.5. During storage pH value can change reaching approx. 10.

The urea solution decomposes slowly at room temperature, generating ammonia and carbon dioxide.

The rate of this reaction increases if the solution is heated.

Above approx. 70 °C biuret is formed additionally at a significant rate.andatory EURO V legislation which came into effect in 2008.

Specifications:

Parameters	U.M.	Limits	Nominal value	Test method	
Urea content	% w/w	31,8 – 33,2	32,5	ISO 22241-2 Ann. C	
Density at 20°C	kg/m3	087,0 – 1093,0	1090,0	ISO 12185	
Refractive index at 20°C	-	1,3814 – 1,3843	1,3829	ISO 22241-2 Ann. C	
Alkalinity as NH3	% w/w	0,20 max.	0,15	ISO 22241-2 Ann. D	
Biuret	% w/w	0,30 max.	0,20	ISO 22241-2 Ann. E	
Aldehydes	mg/kg	5 max.	1	ISO 22241-2 Ann. F	
Insolubles	mg/kg	20 max	1	ISO 22241-2 Ann. G	
Phosphate (PO4)	mg/kg	0.5 max.	0,05	ISO 22241-2 Ann. H	
Calcium	mg/kg	0.5 max.	0,05	SO 22241-2 Ann. I	
Iron	mg/kg	0.5 max.	0,05		
Copper	mg/kg	0.2 max.	0,05		
Zinc	mg/kg	0.2 max.	0,05		
Chromium	mg/kg	0.2 max.	0,05		
Nickel	mg/kg	0.2 max.	0,05		
Aluminium	mg/kg	0.5 max.	0,05		
Magnesium	mg/kg	0.5 max.	0,05		
Sodium	mg/kg	0.5 max.	0,05		
Potassium	mg/kg	0.5 max.	0,05		
Identity	-	Idem			ISO 22241-2 Ann. J

THE SPECIFICATION MEETS THE REQUIREMENTS OF ISO 22241-1:2006-10-15
 SAMPLING AND TESTING ACCORDING TO THE TEST METHODS REFERRED IN ISO 22241-2:2006-10-15.
 THESE SPECIFICATIONS WILL BE MODIFIED IF THERE WILL BE UPDATES IN THE STANDARDS.

Raha Energies &/Raha Blue is a Trademark of Prime Regional Supplies Limited. Manufactured in U.A.E

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Physical Properties:

Parameters	U.M.	Values
Density ρ(T)	g/cm ³	1,105-1,085
Thermal conductivity	W/m·K at 25°C	Approx 0,570
Viscosity	mPa·s at 25°C	Approx. 1,4
Surface tension	mN/m at 20 °C	Min 65

Deliveries and Storage:

Packaging: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) is supplied in dedicated road tankers, IBC (Intermediate Bulk Containers), 208lt drums and 20, 10, 5 lt cans

Durability: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue), if protected from sun light and dust has:

- a) in vented tanks a shelf life of 2 years (storage temperature lower than 30°C and average temperature around 20°C)
- b) in closed container a shelf life of 2 years (storage temperature lower than 30°C and average temperature around 20°C)

Storage temperature: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) should be stored protected from sunlight and dust in sealed and possibly ventilated tanks.

Storage temperature should be in the range of - 11°C and 30 °C

Storage and handling: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) should be stored protected from sunlight and dust in sealed and possibly ventilated tanks.

All storage and handling facility should be dedicated and be made of proper materials as follow:

- alloyed austenitic Cr-Ni-steels or Cr-Ni-Mo-steels according to EN 10088-1 or equivalent
 - polymers like PE, PP and polyoxymethylene are suitable at temperatures up to 60°C.
- sealings may be made of PTFE or EPDM*

**The properties of parts made of polymeric materials depend to a considerable extent on blending and processing during the manufacturing process. Therefore, for any polymeric material the supplier should be requested to submit for their product resistance data towards AdBlue, which are tailored for the intended use as well as for the intended operating temperature.*

Non alloyed steels, zinc coated steels, copper, and alloys containing copper are not suitable due to their poor resistance towards urea, urea solution, or the ammonia dissolved therein.

Any other material not cited above must be tested regarding corrosion resistance and possible influences on the product specification.

To be sure about storage and handling products use always BlueBasic approved storage and handling installations reported on the Bluebasic catalogue.

Quality & Traceability:

In order to guarantee the quality of RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) and traceability please follow our instructions reported on the Bluebasic Quality Manual.

- Bulk deliveries should always have quality certificate (Chemical analysis of RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) specific lot) and should be properly sealed
- Closed containers should always report lot number on the label and should be properly sealed.

In case of product manipulation or quality problems please contact our quality department

Safety:

Handling: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) is not an hazardous substance but should be handled according to our MSTs.

All precautions for handling chemicals should be taken in consideration.

Storage and transportation: RahaBlue Oblique Diesel Exhaust Fluid (AdBlue) is not a dangerous substance for transportation. Owing to its chemical nature, however, it must be transported and stored separately from nitrites. Transportation should be made in insulated tanks or on plastic tank pallets (IBC).

In case of product manipulation or quality problems please contact our quality department

NOTE

THE DATA CONTAINED IN THIS PUBLICATION ARE BASED ON OUR CURRENT KNOWLEDGE AND EXPERIENCE. IN VIEW OF THE MANY FACTORS THAT MAY AFFECT PROCESSING AND APPLICATION OF OUR PRODUCT, THESE DATA DO NOT RELIEVE PROCESSORS FROM CARRYING OUT THEIR OWN INVESTIGATIONS AND TESTS; NEITHER DO THESE DATA IMPLY ANY GUARANTEE OF CERTAIN PROPERTIES, NOR THE SUITABILITY OF THE PRODUCT FOR A SPECIFIC PURPOSE. ANY DESCRIPTIONS, DRAWINGS, PHOTOGRAPHS, DATA, PROPORTIONS, WEIGHTS, ETC. GIVEN HEREIN MAY CHANGE WITHOUT PRIOR INFORMATION AND DO NOT CONSTITUTE THE AGREED CONTRACTUAL QUALITY OF THE PRODUCT. IT IS THE RESPONSIBILITY OF THE RECIPIENT OF OUR PRODUCTS TO ENSURE THAT ANY PROPRIETARY RIGHTS AND EXISTING LAWS AND LEGISLATION ARE OBSERVED

MATERIAL SAFETY DATA SHEET

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue)

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	RahaBlue Oblique Diesel Exhaust Fluid (AdBlue)
Synonyms	Product code:71300
Other means of identification	Not Available

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

Relevant identified uses	Diesel Exhaust Fluid. Use according to manufacturer's direction
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Details of the supplier of the safety data sheet

Registered company name	Raha Energies Ltd
Address	Morogoro Road – Misugusugu, Kibaha, P.O. Box 2873 – DSM, Tanzania
Telephone	+255 22 286 3082
Website	www.lubejunction.com
Email	tellusmore@lubejunction.com

Emergency telephone number

Association / Organisation	LUBE JUNCTION
Emergency telephone number	+255 784 772 720

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code

Poisons Schedule	Not Applicable
Classification [1]	Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity – single exposure Category 3 (respiratory tract irritation)
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 – Annex VI

Label elements

Hazard pictogram(s)	
SIGNAL WORD	WARNING

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Precautionary statement(s) Prevention

P271	Use only outdoors or in a well-ventilated area.
P261	Avoid breathing mist/vapours/spray.
P280	Wear protective gloves/protective clothing /eye protection/face protection.

Precautionary statement(s) Response

P321	Specific treatment (see advice on this label).
P362	Take off contaminated clothing and wash before reuse.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Precautionary statement(s) Response

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
57-13-6	31.8-33.2	urea

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <p>Wash out immediately with fresh running water.</p> <p>Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.</p> <p>Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.</p>
Skin Contact	<p>If skin contact occurs:</p> <p>Immediately remove all contaminated clothing, including footwear.</p> <p>Flush skin and hair with running water (and soap if available).</p> <p>Seek medical attention in event of irritation.</p>
Inhalation	<p>If fumes or combustion products are inhaled remove from contaminated area.</p> <p>Lay patient down. Keep warm and rested.</p> <p>Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.</p> <p>Transport to hospital, or doctor, without delay.</p>
Ingestion	<p>IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.</p> <p>For advice, contact a Poisons Information Centre or a doctor.</p> <p>Urgent hospital treatment is likely to be needed.</p> <p>In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.</p> <p>If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided.</p> <p>Further action will be the responsibility of the medical specialist.</p> <p>If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS</p> <p>Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:</p> <p>INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS.</p> <p>Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</p> <p>NOTE: Wear a protective glove when inducing vomiting by mechanical means</p>

Indication of any immediate medical attention and special treatment needed

Treat symptomatically

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

There is no restriction on the type of extinguisher which may be used.
Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. Use fire fighting procedures suitable for surrounding area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.
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Fire/Explosion Hazard	carbon dioxide (CO ₂) nitrogen oxides (NO _x) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes. The material is not readily combustible under normal conditions. However, it will break down under fire conditions and the organic component may burn. Not considered to be a significant fire risk. Heat may cause expansion or decomposition with violent rupture of containers. Decomposes on heating and may produce toxic fumes of carbon monoxide (CO). May emit acrid smoke. Other decomposition products include:
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HAZCHEM	Not Applicable
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SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	<p>Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.</p>
Major Spills	<p>Moderate hazard. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite.</p>

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<p>Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with moisture. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. DO NOT allow clothing wet with material to stay in contact with skin</p>
Other information	<p>Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer’s storage and handling recommendations contained within this SDS.</p>

Conditions for safe storage, including any incompatibilities

Suitable container	Polyethylene or polypropylene container. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
urea	Urea	30 mg/m ³	280 mg/m ³	1,700 mg/m ³

Ingredient	Original IDLH	Revised IDLH
urea	Not Available	Not Available

OCCUPATIONAL EXPOSURE BANDING

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
urea	E	≤ 0.01 mg/m ³

NOTE: Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <ul style="list-style-type: none"> Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure
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<p>Personal protection</p>	
<p>Eye and face protection</p>	<p>Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable.</p>
<p>Skin protection</p>	<p>See Hand protection below</p>
<p>Hands/ feet protection</p>	<p>Wear chemical protective gloves, e.g. PVC. Wear safety footwear or safety gumboots, e.g. Rubber The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p>
<p>Body protection</p>	<p>See Other protection below</p>
<p>Other protection</p>	<p>Overalls. P.V.C. apron. Barrier cream. Skin cleansing cream. Eye wash unit.</p>

Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.

The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.

Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Odour	Ammonia - like
Odour threshold	Not Available
pH (as supplied)	9-10
Melting point / freezing point (°C)	-11.5
Initial boiling point and boiling range (°C)	100
Flash point (°C)	Not Applicable
Evaporation rate	Not Available
Flammability	Not Applicable
Upper Explosive Limit (%)	Not Available
Lower Explosive Limit (%)	Not Available
Vapour pressure (kPa)	Not Available
Solubility in water	Miscible
Vapour density (Air = 1)	Not Available

Partition coefficient n-octanol / water	Not Available
Auto-ignition temperature(°C)	Not Available
Decomposition temperature	Not Available
Viscosity (cSt)	1.4
Molecular weight (g/mol)	Not Applicable
Taste	Not Available
Explosive properties	Not Available
Oxidising properties	Not Available
Surface Tension (dyn/cm or mN/m)	Not Available
Volatile Component (%vol)	Not Available
Gas group	Not Available
pH as a solution (1%)	Not Available
VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION II TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Urea is generally regarded as non-harmful in small amounts. However, exposure should be kept as low as practicable. People with asthma should avoid prolonged contact with urea dust. Urea may cause irritation of the respiratory tract, causing coughing and shortness of breath. Urea may be absorbed into the bloodstream, producing symptoms similar to those caused by swallowing.
Ingestion	Urea may cause irritation to the digestive tract, nausea, vomiting, diarrhea, salt depletion, headache and confusion. Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	The material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected
Eye	This material can cause eye irritation and damage in some persons.
Chronic	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Urea is a body metabolic waste but high exposure to it was reported to cause emphysema, disturbances in protein metabolism and chronic weight loss. However skin exposure of rats produced no reddening but low brain and prostate weights were recorded. It should be avoided in those with kidney or liver impairment.

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue)	TOXICITY Not Available	IRRITATION Not Available
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Urea	TOXICITY dermal (rat) LD50: =8200 mg/kg[2] Oral (rat) LD50: ~14 mg/kg[2]	IRRITATION Eye: no adverse effect observed (not irritating)[1] Skin (human): 22 mg/3 d (I) - mild Skin: no adverse effect observed (not irritating)[1]
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Legend:	<i>1. Value obtained from Europe ECHA Registered Substances – Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS – Register of Toxic Effect of chemical Substances</i>
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Urea

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

For urea:

Urea is used in ointments and creams to treat dry skin. Long-term follow-up studies have indicated that the substance does not cause allergy, and is virtually free from side effects. It is usually tolerated well, although diarrhea is sometimes reported after ingestion of very large amounts (60-90 grams/day). There is the possibility that infection of H. pylori in the human stomach may aggravate local effects by urea because of the generation of ammonia.

Acute toxicity: Animal testing shows that the acute toxicity of urea is low.

Repeated dose toxicity: No well-conducted repeated dose toxicity studies were located.

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

Altered sleep time, change in motor activity, antipsychosis, dyspnea, methaemoglobinaemia, convulsions, lymphomas recorded. Carcinogenic by RTECS criteria.

Acute Toxicity	✗	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✓
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Information on toxicological effects

RahaBlue Oblique Diesel Exhaust Fluid (AdBlue)	ENDPOINT Not Available	TEST DURATION (HR) Not Available	SPECIES Not Available	VALUE Not Available	SOURCE Not Available
Urea	ENDPOINT	TEST DURATION (HR)	SPECIES	SPECIES	SOURCE
	LC50	96	Fish	5mg/L	4
	EC50	48	Crustacea	3910mg/L	4
	EC50	96	Algae/other aquatic plants	42184.758mg/L	3
	BCF	24	Algae/other aquatic plants	0.05mg/L	4
	EC100	24	Crustacea	>10000mg/L	1
NOEC	168	Fish	200mg/L	2	

Raha Energies &/Raha Blue is a Trademark of Prime Regional Supplies Limited. Manufactured in U.A.E

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Legend: | Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
urea	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
urea	LOW (BCF = 10)

Mobility in soil

Ingredient	Mobility
urea	LOW (KOC = 4.191)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

DO NOT allow wash water from cleaning or process equipment to enter drains.

Product / Packaging disposal	Disposal Instructions
Product / Packaging disposal	<p>It may be necessary to collect all wash water for treatment before disposal.</p> <p>In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.</p> <p>Where in doubt contact the responsible authority.</p> <p>Recycle wherever possible.</p> <p>Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.</p> <p>Dispose of by: burial in a land-fill specifically licensed to accept chemical and / or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material).</p> <p>Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.</p>

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

UREA IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS) Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) – Appendix B (Part 3)	IMO IBC Code Chapter 17: Summary of minimum requirements IMO MARPOL (Annex II) – List of Noxious Liquid Substances Carried in Bulk
GESAMP/EHS Composite List – GESAMP Hazard Profiles	IMO MARPOL 73/78 (Annex II) – List of Other Liquid Substances

National Inventory Status

National Inventory	National Inventory
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	NO (urea)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes

Legend:

Yes = All CAS declared ingredients are on the inventory
 No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

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SECTION 16 OTHER INFORMATION

Revision Date	22/12/2022
Initial Date	22/12/2022

SDS Version Summary

Version	Issue Date	Sections Updated
2.1.1.1	22/12/2022	Supplier Information

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the RahaEnergies Classification committee using available literature references. The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

- PC – TWA: Permissible Concentration–Time Weighted Average PC –
- STEL: Permissible Concentration–Short Term Exposure Limit IARC:
- International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit.
- IDLH: Immediately Dangerous to Life or Health Concentrations
- OSF: Odour Safety Factor
- NOAEL :No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour ThresholdValue
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index

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