SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product name:	AdBlue®
Synonyms:	AUS 32 (Aqueous urea solution); DEF (Diesel exhaust fluid); EcoBlue
Recommended use:	Additive for injection into diesel SCR exhaust systems (NO_x reduction in exhaust gases).
Supplier:	MEI Group Pty Ltd
ABN:	9429047339170
Street Address:	18 Seven Mile Drive, Belfast, Christchurch 8051
Email:	deliveries@ecoblue.co.nz
Telephone:	0800 310 340
Emergency Telephone:	New Zealand Poisons Information Centre: 0800 764 766

SECTION 2. HAZARDS IDENTIFICATION

Not classified as a Dangerous Good under NZS 5433: 2012 Transport of Dangerous Goods on Land.

Classified as hazardous according to the criteria of the New Zealand Hazardous Substances New Organisms (HSNO) legislation.

Not regulated for transport of Dangerous Goods.

Subclass 6.3 Category B	Substances that cause mild irritation to the skin.
Subclass 6.4 Category A	Substances that are irritating to the eye.
Subclass 9.3 Category C	Substances that are harmful to terrestrial vertebrates.

Label elements

Hazard pictogram(s)	
SIGNAL WORD	WARNING

Hazard Statement(s):

H316	Causes mild skin irritation.
H320	Causes eye irritation.

H433	Harmful to terrestrial vertebrates.

Precautionary Statement(s):
Prevention:

P103	Read label before use.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Geek medical advice/attention.

Storage:
No applicable storage statements.

Disposal:

Code	Disposal Statement
P501	In the case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.

SECTION 3. COMPOSITION INFORMATION

CHEMICAL NAME	CAS NO.	PROPORTION	Hazard Codes
Water	7732-18-5	67.5%	-
Urea	57-13-6	32.5%	-

SECTION 4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre: **08 00 POISON (0800 764 766)**, New Zealand Emergency Services: **111** or a doctor.

Description of first aid measures

Eye contact	• If eye contact occurs, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. • Removal of contact lenses should only be done by skilled personnel.
Skin contact	• If skin contact occurs, immediately remove any contaminated clothing and wash skin thoroughly with running water and soap. • If swelling, redness, blistering or irritation persists seek medical attention.
Inhalation	• Move the exposed person to fresh air at one – avoid becoming a casualty. • Seek medical advice if effects persist.
Ingestion	• Rinse mouth with water. If swallowed, give a glass of water to drink. • Seek medical advice.

SECTION 5. FIRE FIGHTING MEASURES

Suitable Extinguishing media:
Not combustible, however, if material is involved in a fire use: Fine water spray, foam, dry agent (carbon dioxide, dry chemical powder). Choice of extinguishing media should take into account surrounding areas.

Specific hazards arising from the substance or mixture:
Non-combustible material.

Special protective equipment and precautions for fire-fighters:
Decomposes on heating emitting toxic fumes, including those of ammonia. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/ Environmental precautions:
Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/ Protective equipment/ Methods and materials for containment and cleaning up:

Slippery when spilt. Avoid accidents, clean up spills immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain – prevent run-off into drains and waterways. Use absorbent (soil, sand, or other inert material). Collect and seal in properly labelled containers or drums for disposal.

SECTION 7. HANDLING AND STORAGE

Safe handling	• Limit any unnecessary personal contact. • Wear protective clothing when risk of exposure occurs. • Use in a well-ventilated area. • Avoid vapour inhalation. • When handling, DO NOT eat, drink or smoke. • Always wash hands with soap and water after handling. • Avoid physical damage to containers. • Use good occupational work practice. • Observe manufacturer's storage and handling recommendations contained within this SDS. • DO NOT allow clothing wet with AdBlue® to stay in contact with skin. • When handling product in drums, wear safety footwear and use proper handling equipment.
Storage requirements	• Store in original containers. • Keep containers securely sealed when not in use. • Store in a cool, dry, well-ventilated area. • Use properly labelled containers. • 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.

Conditions for safe storage, including any incompatibilities

Suitable container	Use stainless steel or high-density polyethylene.
Storage incompatibility	• Avoid reaction with oxidising agents. • Avoid strong acids, acid chlorides, acid anhydrites and chloroformates.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls	Natural ventilation should be adequate under normal use conditions. Keep containers closed when not in use.
Hygiene measures	• Keep away from food, drink and animal feeding troughs. • DO NOT eat, drink or smoke when handling. • Wash hands prior to eating, drinking or smoking. • Avoid contact with clothing. • Avoid eye contact and repeated or prolonged skin exposure. • Ensure that eyewash stations and safety showers are close to the workspace.
Personal protective Equipment	
Eye and face protection	• Safety glasses with side shields; or as required. • Chemical goggles. • In the event of chemical exposure, begin eye irrigation immediately • Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. First-aid personnel should be trained on their removal and suitable equipment should be readily available.
Skin protection	See hand protection below
Hands protection	• Wear chemical protective gloves. • The exact break through time for substances must be obtained from the manufacturer of the protective gloves and must 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.
Thermal hazard	Not available

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear liquid	**Vapour density (Air = 1)**	Not Available
Physical state	Liquid	**Relative density (water = 1)**	1.09@20 °C

Colour	Clear to hazy green	**Partition coefficient n-octane / water**	Not available
Odour	Odourless or slight smell of ammonia	**Auto-ignition temperature (°C)**	Not available
pH (as supplied)	Not available	**Decomposition temperature (°C)**	100
Melting point / freezing point (°C)	-11.5	**Viscocity (cSt)**	Not available
Boiling Point (°C)	100	**Molecular weight (g/mol)**	Not available
Flash Point	Not available	**Taste**	Not available
Evaporation rate	Not available	**Explosive properties**	Not available
Evaporation rate	Not available	**Oxidising properties**	Not available
Flammability	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not available
Upper Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not available
Lower Explosive Limit (%)	Not Available	**Gas group**	Not available
Vapour pressure (kPa)	6.4 @ 40 °C	**pH as a solution (1%)**	9.8
Solubility in water (g/L)	Miscible	**VOC (g/L)**	Not available

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	• Unstable in the presence of incompatible materials. • Product is considered stable. • Hazardous polymerisation will not occur.
Reactivity	See section 7
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 11. TOXICOLOGICAL INFORMATION

Inhaled	Not normally a hazard due to non-volatile nature of product. Inhalation of vapours or mists may cause respiratory irritation.
Ingestion	Ingestion of large quantities may cause irritation to the digestive tract, nausea, vomiting, diarrhoea, headache, confusion.
Skin contact	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.
Eye	May produce eye irritation and discomfort.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless, exposure by all routes should be minimised. As with any chemical product, contact with unprotected bare skin, inhalation of vapour, mist or dust in workplace atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.
Toxicity	(Rat) LD50: 8471 mg/kg.
Acute toxicity	Data not available to make classification.
Acute inhalation toxicity	Not considered to be an inhalation hazard under normal conditions of use.
Mutagenicity	Data not available to make classification
Carcinogenicity	Data not available to make classification
Teratogenicity	Data not available to make classification

SECTION 12. ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Toxicity

	End Point	Test Duration (hr)	Species	Value	Source
AdBlue	Not Available	Not Available	Not Available	Not Available	Not Available
Urea	**End Point**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	LC50	96	Fish	5mg/L	2
	EC50	48	Crustacea	3910mg/L	2
	BCF	24	Algae or other aquatic plants	0.05mg/L	2
	EC100	24	Crustacea	>10000mg/L	1
	NOEC	96	Crustacea	1000mg/L	2

Water	**End Point**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	*1. IUCLID Toxicity Data* *2. US EPA, Ecotox database - Aquatic Toxicity Data*				

Atmospheric fate - Urea will not evaporate from water to the atmosphere and is expected to be readily degraded by reactions with photochemically produced hydroxyl radicals; half-life is expected to be less than 1 day. Degradation of urea to ammonia causes NH3-emissions to the air.

Terrestrial Fate - Urea will hydrolyse into ammonium in a matter of days to several weeks. Urea is relatively leachable from the soil into surface water and groundwater especially if the soil surface is saturated with water.

Aquatic Fate - Urea is very soluble in water and may rapidly biodegrade to a moderate extent. Urea is not expected to evaporate significantly. Urea can be leached relatively easily into the surface water and the groundwater. Degradation products (e.g. nitrate, nitrite and ammonium) can be measured after urea has undergone biodegradation.

Ecotoxicity - Urea is not likely to undergo bioaccumulation and generally has low acute ecotoxicity to organisms. The degradation product of urea, ammonia, is known to be toxic to all vertebrates; however, in neutral and acidic conditions, ammonia exists in the form of the ammonium ion. Urea may directly influence eutrophication in the environment and there is a pollution risk to groundwater.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Urea	Low	Low
Water	Low	Low

Bio accumulative potential

Ingredient	Bioaccumulation
Urea	Low (BCF – 10)
Water	Low (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility
Urea	Low (KOC = 4.191)
Water	Low (KOC = 14.3)

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/Packaging disposal	• Recycle wherever possible. • 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. • 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). • Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed. • Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport: Not classified as a Dangerous Good under NZS 5433: 2012 Transport of Dangerous Goods on Land

Marine Transport: Not classified as a Dangerous Good by the criteria of the International Maritime Dangerous Gods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

Air Transport: Not classified as a Dangerous Good by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

HAZCHEM: Not applicable.

SECTION 15. REGULATORY INFORMATION

Classification:
Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

Subclasses:
Subclass 6.3 Category B - Substances that are mildly irritating to the skin.
Subclass 6.4 Category A - Substances that are irritating to the eye.
Subclass 9.3 Category C - Substances that are harmful to terrestrial vertebrates.

Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2006

Hazard Statement(s):
H316 Causes mild skin irritation.
H320 Causes eye irritation.
H433 Harmful to terrestrial vertebrates.

SECTION 16. OTHER INFORMATION

MSDS version number: 4.0_NZ
MSDS effective date: 17/04/2019

Reason(s) for Issue:
This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Mammoth Equipment & Exhausts Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Mammoth representative or Mammoth Equipment & Exhausts Pty Ltd at the contact details on page 1.

Mammoth Equipment & Exhausts Pty Ltd 's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.