



MATERIAL SAFETY DATA SHEET

Aqueous Urea Solution 40% (AUS40)

Section 1. IDENTIFICATION

Product Name: Aqueous Urea Solution 40%

Synonyms: DEF (40%), AUS40, Marine urea solution

Recommended use: NOx Reducing Agent from diesel combustion.

Restrictions on use: Use only as directed.

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Emergency Telephone Number

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Emergency Services 000

Section 2. HAZARD(S) IDENTIFICATION

Classification:

Physical	Health	Environmental
Not Hazardous	Not Hazardous	Not Hazardous

Label Elements: None required.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Concentration
Water	7732-18-5	Balance
Urea	57-13-6	40%
Free Ammonia (Alkalinity)	7664-41-7	≤ 0.2 %
Biuret	108-19-0	< 0.3 %

Section 4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If irritation occurs or breathing is difficult, get medical attention.

Skin contact: Wash with soap and water. If irritation develops and persists, get medical attention.

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Eye contact: Flush eyes with water while lifting the upper and lower lids. Get medical attention if irritation develops or persists.

Ingestion: Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to a person who is unconscious or convulsing. Get medical attention.

Most important symptoms/effects, acute and delayed: Contact with eyes may cause mild eye irritation. Prolonged skin contact may cause skin irritation. Inhalation of mists may cause upper respiratory tract irritation. Swallowing large amounts may cause gastric upset.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is not required under normal use conditions.

Section 5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media: Use any media that is appropriate for the surrounding material on fire. DEF is not flammable.

Specific hazards arising from the chemical: Combustion may produce oxides of carbon, nitrogen, and ammonia.

Special protective equipment and precautions for fire-fighters: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus. Cool fire exposure containers with water.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Wear appropriate protective clothing and equipment.

Environmental hazards: Report spill as required by local and federal regulations.

Methods and materials for containment and cleaning up: Collect spilled material with inert material and place into a closable, labeled container for disposal. Wash spill area with water.

Section 7. HANDLING AND STORAGE

Precautions for safe handling: Avoid eye contact and prolonged skin contact. Avoid breathing mists or spray. Use with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Store in a cool, well-ventilated area. Protect storage containers from physical damage.

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Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines:

Water	None Established
Urea	10 mg/m ³ TWA AIHA WEEL
Ammonia	50 ppm TWA OSHA PEL 25 ppm TWA, 35 ppm STEL ACGIH TLV
Biuret	None Established

Appropriate engineering controls: No special ventilation required for normal use. If use generates mists, use general ventilation or local exhaust as required to maintain exposures below the occupational exposure limits.

Individual protection measures, such as personal protective equipment:

Respiratory protection: None needed under normal conditions of use.

Skin protection: None normally needed. Wear rubber or neoprene gloves for prolonged skin contact. **Eye/face protection:** Safety glasses are recommended if splashing is possible.

Other: Appropriate protective clothing as needed to minimize skin contact.



Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless Clear liquid

Odor: Slight ammonia odor.

Odor threshold: None	PH: 7.5-9.5
Melting point/freezing point: Not available	Boiling point: 212°F (100°C)
Flash point: Not flammable	Evaporation rate: Not available
Flammability (solid, gas): Not applicable	
Flammable limits: LEL: Not applicable	UEL: Not applicable
Vapor pressure: Not available	Vapor Density: Not available
Relative density: 1.113	Solubility in Water: 100%
Partition coefficient: n-octanol/water: Not available	Auto-ignition temperature: Not applicable
Decomposition temperature: Not applicable	Viscosity: Not available

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Section 10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical stability: Stable.

Possibility of hazardous reactions: None known.

Conditions to avoid: Do not mix with any other chemicals or products.

Incompatible materials: Avoid strong acids and oxidizing agents.

Hazardous decomposition products: Thermal decomposition may produce oxides of carbon, nitrogen, and ammonia.

Section 11. TOXICOLOGICAL INFORMATION

Inhalation: High concentrations of mists may cause nose, throat, and upper respiratory tract irritation.

Ingestion: Swallowing large amounts may cause gastrointestinal irritating and nausea.

Skin contact: Prolonged skin contact may cause skin irritation.

Eye contact: Mists or direct contact may cause mild irritation with redness and tearing.

Chronic effects: None known.

Reproductive Toxicity: None of the components have been shown to cause reproductive or developmental toxicity.

Mutagenicity: None of the components have been shown to cause mutagenic activity.

Carcinogenicity: None of the ingredients are listed as a carcinogen by IARC, NTP or OSHA.

Acute Toxicity Values:

Urea: Oral rat LD50 14,300 – 15000 mg/kg

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:

Urea: 96 hr LC50 *Leuciscus idus* >6810 mg/L, 24 hr EC50 *daphnia magna* >10000 mg/L

Persistence and degradability: Urea is rapidly hydrolyzed to ammonia and carbon dioxide in environmental systems.

Bioaccumulative potential: The potential for bioconcentration in aquatic organisms is expected to be low.

Urea Log Pow -1.59 @ 25°C

Mobility in soil: Urea is highly mobile in soil.

Other adverse effects: None known.

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Section 13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state, and federal regulations.

Section 14. TRANSPORT INFORMATION

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
DOT	None	Not Regulated			
TDG	None	Not Regulated			
IMDG	None	Not Regulated			
IATA	None	Not Regulated			

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable – product is transported only in packaged form.

Special precautions: None known.

STCC Code: 2818142

Section 15. REGULATORY INFORMATION

Safety, health, and environmental regulations specific for the product in question.

Non-Hazardous Chemical. Non-Dangerous Goods.
According to the WHS Regulations and the ADG Code

UREA(57-13-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Inventory of Chemical Substances (AICS)

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Section 16. OTHER INFORMATION

NFPA Rating: Health = 1

Flammability = 0

Instability = 0

HMIS Rating: Health = 1

Flammability = 0

Physical Hazard = 0

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