OCHNOLOGY SOLUTION PVT. LTD
Website: www.ochnology.com
Tel: +91 9286823642/43
Address: B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
E-Mail: projects@ochnology.com, bd@ochnology.com

Material Safety Data Sheet (MSDS / SDS)

Urea – Technical Grade (Solid) and AdBlue/DEF Grade (Aqueous Solution)

SECTION 1: Identification

Product Name	Urea (Carbamide) – Solid Technical Grade and AdBlue/DEF Aqueous Solution Grade
Synonyms	Urea, Carbamide, Carbonyldiamide, Technical Grade Urea, AdBlue, DEF (Diesel Exhaust Fluid), AUS 32, ISO 22241 Urea Solution
CAS No.	57-13-6
Recommended Use	Industrial nitrogen source and resin/adhesive feedstock (solid technical grade); Diesel Exhaust Fluid for SCR NOx-reduction systems (AdBlue/DEF aqueous grade)
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
Telephone	+91 9286823642/43
Email	projects@ochnology.com, bd@ochnology.com

SECTION 2: Hazard(s) Identification

GHS Classification: Not classified as hazardous under GHS for acute health or environmental hazards based on available data. May cause mild irritation to eyes and skin on prolonged or repeated contact.

Signal Word: None (not classified) – general good-handling-practice precautions apply

Hazard Statements:

- Not classified as a hazardous substance or mixture under GHS/CLP for acute health or environmental hazards based on available data
- May cause mild, transient irritation to eyes and skin on prolonged or repeated direct contact

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- Solid dust may cause mechanical irritation to the respiratory tract at high airborne concentrations

Precautionary Statements:

- P264 – Wash hands thoroughly after handling
- P271 – Use only outdoors or in a well-ventilated area (solid dust)
- P280 – Wear protective gloves/eye protection when handling in bulk
- P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes; remove contact lenses if present and easy to do; continue rinsing

SECTION 3: Composition / Information on Ingredients

Component	CAS No.	Concentration (w/w)
Urea (Solid Technical Grade)	57-13-6	Min. 98% (as urea; biuret/moisture per grade)
Urea (AdBlue/DEF Aqueous Grade)	57-13-6	31.8 – 33.2% w/w in deionised water

SECTION 4: First-Aid Measures

Eye Contact	Rinse with plenty of water for several minutes, holding eyelids open. Remove contact lenses if present. Seek medical attention if irritation persists.
Skin Contact	Wash with soap and water. Generally low-irritating; seek medical attention if irritation persists.
Inhalation	If solid dust is inhaled and coughing/discomfort occurs, move to fresh air and seek medical attention if symptoms persist. Not a significant exposure route for the aqueous AdBlue/DEF form under normal handling.
Ingestion	Rinse mouth with water. Not expected to be significantly harmful in small amounts; seek medical attention if a large quantity is ingested or discomfort occurs.

SECTION 5: Fire-Fighting Measures

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- Non-flammable solid and non-flammable aqueous solution; does not itself burn under normal conditions
- Suitable extinguishing media: use media appropriate to the surrounding fire (water spray, CO2, dry chemical, foam)
- Strong heating or combustion in a surrounding fire can decompose urea, releasing ammonia, oxides of nitrogen, isocyanic acid and biuret vapours
- Fire-fighters should wear SCBA in enclosed or heavily smoke-logged conditions

SECTION 6: Accidental Release Measures

- Solid: avoid generating dust; sweep or vacuum into a suitable container for reuse or disposal
- Aqueous (AdBlue/DEF): contain spill; the solution is not classified as hazardous but is nutrient-rich – avoid unnecessary discharge to waterways or soil
- Spilled aqueous solution can be slippery on hard floors – clean promptly
- Wear appropriate PPE (gloves, safety glasses) during clean-up of large spills

SECTION 7: Handling and Storage

- Solid: store in a cool, dry, well-ventilated area away from moisture – product is hygroscopic and will cake if exposed to humidity
- Solid: keep away from strong oxidising agents and chlorinated products
- AdBlue/DEF solution: avoid contact with copper, brass, zinc and certain other metals, which can corrode or catalyse decomposition of the solution – use compatible materials (stainless steel, HDPE) for storage/dispensing
- AdBlue/DEF solution: solution freezes at approximately −11°C and expands on freezing – use freeze-tolerant containers/lines; freezing does not damage the product chemically
- Keep containers/bags tightly closed to prevent contamination, moisture ingress, or evaporation that could shift concentration out of specification

SECTION 8: Exposure Controls / Personal Protection

Occupational Exposure Limits	No specific OEL established for urea; treat solid dust as Particulates Not Otherwise Regulated (nuisance dust), general reference 10 mg/m³ total dust, 8-hr TWA
Engineering Controls	General ventilation is normally sufficient; local exhaust

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	recommended where solid dust is generated in bulk handling
Eye/Face Protection	Safety glasses recommended when handling bulk solid or during AdBlue/DEF transfer where splash is possible
Hand Protection	General-purpose gloves sufficient for routine handling of either form
Respiratory Protection	Dust mask (N95 or equivalent) recommended for solid technical-grade handling in dusty conditions; not normally required for AdBlue/DEF aqueous handling

SECTION 9: Physical and Chemical Properties

Property	Unit	Value
Appearance (Solid Technical Grade)	–	White prills or granules
Appearance (AdBlue/DEF Solution)	–	Clear to slightly yellow liquid
Melting Point (Solid Urea)	°C	≈ 132.7
pH (Solid, 1% solution)	–	≈ 7.2 (near neutral)
Solubility in Water	–	Highly soluble (both forms)
Density (AdBlue/DEF Solution, 20°C)	g/cm³	1.087 – 1.093
Freezing Point (AdBlue/DEF Solution)	°C	≈ −11 (expands on freezing)
Flash Point	–	Not applicable (non-flammable, both forms)

SECTION 10: Stability and Reactivity

- Stable under normal conditions of storage, handling and use
- Decomposes on strong heating (above approx. 150°C), releasing ammonia, biuret and isocyanic acid vapours
- Incompatible materials: strong oxidising agents, nitrites (potential for hazardous reaction under acidic conditions)

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- AdBlue/DEF solution is corrosive to copper, brass, zinc and certain other non-compatible metals over time – use compatible equipment materials

SECTION 11: Toxicological Information

- Very low acute oral and dermal toxicity; urea is widely regarded as having a favourable safety profile and is used even in some cosmetic/skincare formulations at controlled purity
- May cause mild, transient irritation to eyes and skin on prolonged or repeated direct contact with concentrated solid or solution
- Not classified as carcinogenic, mutagenic, or toxic to reproduction based on available information

SECTION 12: Ecological Information

- Readily biodegradable; not classified as acutely hazardous to aquatic organisms under GHS criteria
- As a nitrogen-rich compound, large or repeated releases to waterways can contribute to nutrient loading and eutrophication (algal bloom risk) – avoid unnecessary bulk discharge to surface water
- No significant bioaccumulation potential

SECTION 13: Disposal Considerations

- Dispose of product and packaging in accordance with local, state and national regulations
- Avoid large-scale discharge to waterways due to nitrogen/nutrient loading potential
- Not expected to require classification as hazardous waste under standard criteria; confirm local requirements before disposal

SECTION 14: Transport Information

UN Number	Not applicable – not classified as Dangerous Goods (either form)

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Proper Shipping Name	Not regulated for transport (IMDG / ADR / IATA / RID)
Transport Hazard Class	Not classified
Packing Group	Not applicable
Environmental Hazards	None identified under standard transport classification criteria; avoid bulk release to aquatic environment as general good practice

SECTION 15: Regulatory Information

- Urea is widely listed on major chemical inventories (TSCA, REACH, ECL, etc.) as an existing/registered substance
- AdBlue/DEF grade material intended for use as Diesel Exhaust Fluid should carry current ISO 22241-1/-2 certification – buyers should confirm certification status and batch COA separately from this general SDS before use in SCR systems
- Buyers/importers should confirm labelling and inventory requirements applicable to their specific jurisdiction and end-use

SECTION 16: Other Information

Revision Date: 18 July 2026

This SDS has been compiled based on general industry data and knowledge for Urea products of this type as commercially supplied, covering both standard technical-grade solid urea and AdBlue/DEF-grade aqueous urea solution. It is intended as a general handling and safety guide and does not replace a batch-specific SDS from the manufacturing mill, which should be obtained and reviewed for each shipment where regulatory submission is required.
