

Diesel Exhaust Fluid (DEF) – Urea Solution 32.5%

SECTION 1: Identification

1.1 Product Identifier

Product Name: Diesel Exhaust Fluid (DEF) Urea Solution
Synonyms: Urea Liquor, CDI-DEF, ABF-DEF
Product Type: Liquid, Mixture
Product Code(s): 873, 881

1.2 Recommended Use

Identified Uses: NOx Reducing Agent

1.3 Supplier Details

Cervantes-Delgado, Inc.
 471 W. Lambert Road, Suite #100
 Brea, CA 92821
 714-990-3940
cdi@cervantes-delgado.com
www.cervantes-delgado.com

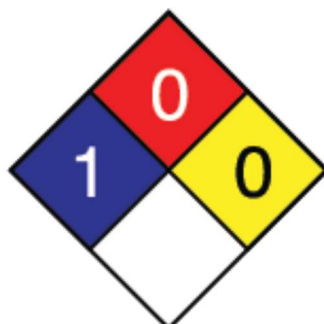
1.4 Emergency Phone No.

CHEMTREC (US & Canada) 1-800-424-9300

SECTION 2: Hazards Identification

National Fire Protection Association

Health	1
Flammability	0
Physical Hazard	0
Personal Protection	



Legend HMIS / NFPA	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

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2.1 Classification of the Substance or mixture

This material is not classified as hazardous.

2.2 Label Elements

Signal Word: None

Hazard Statement: No labeling applicable

Pictograms: None

Precautionary Statements:

P302+P352 – IF ON SKIN: Wash with plenty soap and water.

P305+P351 – IF IN EYES: Rinse cautiously with water for several minutes.

P332+P313 – If skin irritation occurs: get medical advice/attention.

P337+P313 – If eye irritation persists: get medical advice/attention.

2.3 Other Hazards

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Contact may cause mild skin irritation including redness and burning. No harmful effects from skin absorption have been reported.

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Signs and Symptoms: Effects of overexposure may include irritation of the nose, throat and digestive tract, headaches, coughing, nausea, vomiting, and transient disorientation.

Cancer: Inadequate evidence available to evaluate the cancer hazard of this material.

SECTION 3: Composition / Information of Ingredients

Name	Product Identifier	% by weight	GHS- US Classification
Urea	(CAS No.) 57-13-6	31 - 33	Not Classified
Water	(CAS No.) 7732-18-5	67 - 69	Not Classified

SECTION 4: First Aid Measures

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4.1 Description of Necessary First Aid Measures

General: If medical attention is needed have product container or label available.

Eye Contact: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention. Wash contaminated clothing before reuse.

Inhalation: If respiratory problems develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion: First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

4.2 Most Important symptoms and effects, both acute and delayed

Eye Contact: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin Contact: Contact may cause mild skin irritation including redness and burning. No harmful effects from skin absorption have been reported.

Inhalation: No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion: No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingesting large quantities may result in abdominal pains, diarrhea, nausea or vomiting.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: No special requirements. Treat symptomatically.

SECTION 5: Fire-Fighting Measures

5.1 Extinguishing Media

Suitable Extinguishing Media: Material is non-flammable. Use extinguishing media appropriate for the surrounding fire.

Unsuitable Extinguishing Media: None known

5.2 Special hazards arising from the substance or mixture

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Fire Hazard: Under fire conditions this material may decompose to ammonia, nitrogen oxides and carbon dioxide.

Explosion Hazard: Avoid contact with strong oxidizing agents such as chlorine (bleach), peroxides, chromates, nitric acid, perchlorates, concentrated oxygen or permanganates. Contact can generate heat, fires, explosions and release toxic fumes.

5.3 Advice for fire-fighters

Special Protective Equipment: Fire-fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away from the spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Stop the source of the release if it can be done without risk. Immediately isolate the hazard area and restrict access to authorized personnel only.

6.2 Environmental precautions

To prevent spilled material from entering sewers, storm drains or natural watercourses, contain material with a dike or with appropriate absorbent materials such as sand, clay, soil or commercially available absorbent. Inform appropriate authorities if the material enters environmentally sensitive waterways.

Prevent material from entering basements or confined areas.

6.3 Methods and material for containment and clean up

Small Spill: Contain any spill with a dike or with appropriate absorbent materials such as sand, clay, soil or commercially available absorbent. Dilute with water and mop up. Place liquid and absorbent into a suitable waste container for disposal at an appropriate disposal facility according to current applicable laws and regulations.

Large Spill: Stop the source of the release if it can be done without risk. Immediately isolate the hazard area and restrict access to authorized personnel only. Wear appropriate protective equipment including respiratory protection as conditions warrant. To prevent spilled material from entering sewers, storm drains or natural watercourses, contain material with a dike or with appropriate absorbent materials. Place liquid and absorbent into a suitable waste container for disposal at an appropriate disposal facility according to current applicable laws and regulations. Do not return spilled material to the original containers for re-use.

6.4 Reference to other sections

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Personal Protection –Section 8

Disposal Considerations – Section 13

SECTION 7: Handling and Storage

7.1 Precautions for safe handling

Handle using good industrial hygiene and safety procedures.

Wear appropriate personal protective equipment.

Avoid breathing vapor or mist.

Do not eat, drink or smoke when working with this material.

Avoid contact with skin and eyes. Wash hands and other areas of contact thoroughly with soap and water after handling this material.

7.2 Conditions for safe storage, including and incompatibilities

Store material in the original container protected from direct sunlight in a clean, cool, dry and well ventilated area.

Avoid containers, piping or fittings made of brass, bronze, all copper alloys, aluminum or galvanized metal.

Store this material in closed containers away from incompatible materials (Section 10).

Previously opened containers should carefully resealed and stored upright to avoid leaking.

7.3 Specific end use(s)

Industrial applications, emission control, diesel exhaust treatment reagent

SECTION 8: Exposure Controls / Personal Protection

8.1 Control parameters

No exposure limits established.

8.2 Exposure controls

Engineering controls: Provide adequate ventilation in storage and handling areas.

8.3 Individual protection measures

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Personal protective equipment: Gloves, Safety Goggles, Protective Clothing



Hand Protection: Impermeable protective gloves should be worn at all times when handling chemical products.

Eye protection: Wear close fitting chemical goggles or full face shield where splashing or contact is likely. Do not wear contact lenses.

Skin and Body protection: Wear task appropriate protective clothing and full protective suit if splashing may occur.

Respiratory protection: Under normal operating conditions no personal respiratory protection is necessary. Use a NIOSH-approved respirator if concentrations of mist or vapor are expected to exceed occupational exposure limits.

General Hygiene measures:

- Wash contaminated clothing before reuse.
- Wash hands after handling the material particularly before eating or drinking.
- Avoid breathing mists or vapors.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical State	:	Liquid
Appearance	:	Clear
Color	:	Colorless
Odor	:	Slight, Ammonia
pH	:	~10
Molecular Weight	:	60.07 (100% Urea)
Melting / Freezing point	:	-11.5°C (11.3°F)
Boiling Point	:	~104°C (219°F)
Flash Point	:	No data available
Evaporation Rate	:	No data available
Self-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability	:	No data available
Flammability limits	:	No data available
Vapor Pressure @ 20°C	:	80 Pa @ 20°C
Relative vapor density @ 20°C	:	No data available

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Specific Gravity	:	1.087-1.093 @ 20°C
Density	:	9.09 lb / gal
Solubility	:	Water: Miscible
Viscosity, dynamic	:	1.4 mPa.s @ 20°C (68.0°F)
Explosive properties	:	No data available
Oxidizing Properties	:	No data available
Explosive limits	:	No data available

SECTION 10: Stability and Reactivity

10.1 Reactivity

Material is stable under normal conditions of storage and handling.

10.2 Chemical Stability

Material is stable at standard temperature and pressure.

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

Avoid contamination from metals, dust or organic materials.

10.5 Incompatible materials

Avoid contact with strong oxidizing agents such as chlorine (bleach), peroxides, chromates, nitric acid, perchlorates, concentrated oxygen or permanganates. Contact can generate heat, fires, explosions and release toxic fumes.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Under fire conditions this material may decompose to ammonia, nitrogen oxides and carbon dioxide.

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

<i>Acute Toxicity:</i>	No known significant effects or critical hazard
Oral:	Low acute toxicity - LD50 (rat) >5000mg/kg
Dermal:	Low acute toxicity - LD50 (rat) >2000mg/kg

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<i>Skin Corrosion / Irritation:</i>	Prolonged contact can cause irritation: pH 10.
<i>Serious damage / Irritation:</i>	Can cause irritation: pH 10.
<i>Respiratory or skin sensitization:</i>	No known significant effects.
<i>Germ cell mutagenicity:</i>	No known significant effects or critical hazard
<i>Carcinogenicity:</i>	No known significant effects or critical hazard
<i>Mutagenicity:</i>	No known significant effects or critical hazard
<i>Reproductive toxicity:</i>	No known significant effects or critical hazard
<i>Teratogenicity:</i>	No known significant effects or critical hazard
<i>Specific Target Organ toxicity (single exposure):</i>	Not classified
<i>Specific Target Organ toxicity (repeated exposure):</i>	Not classified
<i>Aspiration Hazard:</i>	No known significant effects or critical hazard

11.2 Potential Acute Health Effects

Short Term Exposure

<i>Eye Contact:</i>	No known significant effects or critical hazard
<i>Inhalation:</i>	Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
<i>Skin Contact:</i>	No known significant effects or critical hazard
<i>Ingestion:</i>	No known significant effects or critical hazard

Potential Chronic Health Effects: No known significant effects or critical hazard.

SECTION 12: Ecological Information

12.1 Toxicity

Low toxicity to aquatic organisms

Fish: *Barillius barna*, 96 Hr LC₅₀ >9,100 mg/L

Invertebrates: *Daphnia magna*, 24-Hr EC₅₀ ≥ 10,000 mg/L

Plants: *Scenadesmus quadricauda*, 192 Hr cell multiplication inhibition Test TT > 10,000 mg/L

12.2 Persistence / degradability

Ultimately biodegradable

12.3 Bioaccumulation / accumulation

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Material is unlikely to persist in the environment.

12.4 Mobility in environmental media

Because the product is highly water soluble, it will move with surface and ground water.

12.5 Chemical fate information

In water: Material is a fertilizer which may promote eutrophication in waterways. It is non-toxic to aquatic organisms as defined by USEPA.

In soil: Urea converts to nutrient nitrogen readily available to plants.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

Contain any waste in appropriate containers or with absorbent materials that can be placed in a container for safe disposal.

Because of the high purity specifications of this product, spilled or recovered material is not considered usable for the original purpose as DEF.

13.2 Waste Disposal Recommendations

Place waste in appropriate containers and dispose of in accordance with requirements of environmental protection and waste disposal legislation and any regional authority.

Do not dispose to the sewer unless it is allowed by the local jurisdiction.

Surplus and non-recyclable material should be disposed of by a licensed waste disposal contractor.

Waste packaging should be recycled if available, otherwise it should go to landfill.

13.3 Additional Information

This material is not listed as a RCRA Toxic Hazardous Waste

SECTION 14: Transport Information

U.S. Department of Transportation (DOT): Not regulated as Hazardous Material

Transportation of Dangerous Goods (TDG-Canada): Not regulated as Hazardous Material

International Maritime Dangerous Goods Code (IMDG): Not regulated as Hazardous Material

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International Air Transport Association (IATA): Not regulated as Hazardous Material

14.1 UN number:

Not applicable

14.2 UN Proper Shipping Name:

Urea Solution

14.3 Additional Information:

No supplementary information available.

SECTION 15: Regulatory Information

15.1 U.S. Federal Regulations

TSCA: Not listed

OSHA: Not listed, however, some states have more stringent OSH programs than OSHA. Consult local state regulations to confirm compliance.

EPA

Clean Air Act: Not listed

Clean Water Act: Not listed

SARA

Hazard Categories-

Immediate Health hazard: Yes

Delayed Hazard: No

Fire Hazard: No

Pressure Hazard: No

Reactivity Hazard: No

304: Reportable quantity- 111,000 lbs

311/312: Classification not applicable, no products were listed.

15.2 Canadian Regulations

WHMIS: Class D Division 2 Subdivision B – Urea - Uncontrolled product.

DSL: All components are listed or exempt.

SECTION 16: Other Information

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