

## SECTION 1: IDENTIFICATION

### 1.1. Product Identifier

**Product Form:** Mixture

**Product Name:** Diesel Exhaust Fluid

**Synonyms:** DEF

### 1.2. Intended Use of the Product

**Use of the substance/mixture:** Diesel Exhaust NOx Reducing Agent

### 1.3. Name, Address, and Telephone of the Responsible Party

#### Company

Tri-Star DEF LLC  
5508 Lonas Drive  
Knoxville, TN 37909  
865-588-7488

### 1.4. Emergency Telephone Number

**Emergency Number** : 865-588-7488 ext. 2541 Opt 5, Pangean - CMD 770-355-5094

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the Substance or Mixture

#### Classification (GHS-US)

Not classified

### 2.2. Label Elements

#### GHS-US Labeling

No labeling applicable

### 2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

### 2.4. Unknown Acute Toxicity (GHS-US)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product Identifier	%	Classification (GHS-US)
Water	(CAS No) 7732-18-5	66.8 - 68.2	Not classified
Urea	(CAS No) 57-13-6	31.8 - 33.2	Not classified

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of First Aid Measures

**First-aid Measures General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**First-aid Measures After Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

**First-aid Measures After Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

**First-aid Measures After Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persist.

**First-aid Measures After Ingestion:** Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/Injuries:** Not expected to present a significant hazard under anticipated conditions of normal use.

**Symptoms/Injuries After Inhalation:** Prolonged exposure to liquid may cause a mild irritation.

**Symptoms/Injuries After Skin Contact:** May cause mild skin irritation.

**Symptoms/Injuries After Eye Contact:** Prolonged exposure to liquid may cause a mild irritation.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

### 4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

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## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing Media

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### 5.2. Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Not considered flammable but may burn at high temperatures.

**Explosion Hazard:** Product is not explosive.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

### 5.3. Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Avoid breathing (vapor, mist, spray). Avoid prolonged contact with eyes, skin and clothing.

#### 6.1.1. For Non-emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### 6.1.2. For Emergency Responders

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area.

### 6.2. Environmental Precautions

Prevent entry to sewers and public waters.

### 6.3. Methods and Material for Containment and Cleaning Up

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material, then place in suitable container.

### 6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for Safe Handling

**Additional Hazards When Processed:** When heated to decomposition, emits toxic fumes.

**Precautions for Safe Handling:** Avoid breathing vapors, mist, spray. Avoid prolonged contact with eyes, skin and clothing.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures, incompatible materials.

**Incompatible Products:** Strong acids. Strong bases. Strong oxidizers. Hypochlorites.

### 7.3. Specific End Use(s)

Diesel Exhaust NOx Reducing Agent.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control Parameters

No additional information available

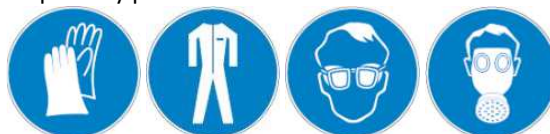
### 8.2. Exposure Controls

#### Appropriate Engineering Controls

: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

#### Personal Protective Equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



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<b>Materials for Protective Clothing</b>	: Chemically resistant materials and fabrics.
<b>Hand Protection</b>	: Wear chemically resistant protective gloves.
<b>Eye Protection</b>	: Chemical goggles or safety glasses.
<b>Respiratory Protection</b>	: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.
<b>Other Information</b>	: When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on Basic Physical and Chemical Properties

<b>Physical State</b>	: Liquid
<b>Appearance</b>	: Colorless, clear
<b>Odor</b>	: Slight Ammonia
<b>Odor Threshold</b>	: No data available
<b>pH</b>	: 9.8 - 10
<b>Evaporation Rate</b>	: No data available
<b>Melting Point</b>	: No data available
<b>Freezing Point</b>	: No data available
<b>Boiling Point</b>	: 104 °C (219.20 °F)
<b>Flash Point</b>	: Non-flammable
<b>Auto-ignition Temperature</b>	: No data available
<b>Decomposition Temperature</b>	: No data available
<b>Flammability (solid, gas)</b>	: No data available
<b>Vapor Pressure</b>	: No data available
<b>Relative Vapor Density at 20 °C</b>	: No data available
<b>Relative Density</b>	: No data available
<b>Specific Gravity</b>	: 1.087-1.093 @20°C (68°F)
<b>Solubility</b>	: Soluble in water.
<b>Partition Coefficient: N-octanol/water</b>	: No data available
<b>Viscosity</b>	: No data available

**9.2. Other Information** No additional information available

## SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2. Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).
- 10.3. Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Incompatible materials.
- 10.5. Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Hypochlorites.
- 10.6. Hazardous Decomposition Products:** Nitrogen oxides. Irritating fumes.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information On Toxicological Effects

**Acute Toxicity:** Not classified

<b>Water (7732-18-5)</b>	
<b>LD50 Oral Rat</b>	> 90000 mg/kg
<b>Urea (57-13-6)</b>	
<b>LD50 Oral Rat</b>	8471 mg/kg

**Skin Corrosion/Irritation:** Not classified **pH:** 9.8 - 10

**Serious Eye Damage/Irritation:** Not classified **pH:** 9.8 - 10

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

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**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Prolonged exposure to liquid may cause a mild irritation.

**Symptoms/Injuries After Skin Contact:** May cause mild skin irritation.

**Symptoms/Injuries After Eye Contact:** Prolonged exposure to liquid may cause a mild irritation.

**Symptoms/Injuries After Ingestion:** Ingestion is likely to be harmful or have adverse effects.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

<b>Urea (57-13-6)</b>	
<b>LC50 Fish 1</b>	16200 - 18300 mg/l (Exposure time: 96 h - Species: Poecilia reticulata)
<b>EC50 Daphnia 1</b>	3910 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

### 12.2. Persistence and Degradability

<b>Diesel Exhaust Fluid</b>	
<b>Persistence and Degradability</b>	Not established.

### 12.3. Bioaccumulative Potential

<b>Diesel Exhaust Fluid</b>	
<b>Bioaccumulative Potential</b>	Not established.
<b>Urea (57-13-6)</b>	
<b>BCF fish 1</b>	< 10
<b>Log Pow</b>	-1.59 (at 25 °C)

**12.4. Mobility in Soil** No additional information available

### 12.5. Other Adverse Effects

**Other Information** : Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, and international regulations.

## SECTION 14: TRANSPORT INFORMATION

**14.1. In Accordance with DOT** Not regulated for transport

**14.2. In Accordance with IMDG** Not regulated for transport

**14.3. In Accordance with IATA** Not regulated for transport

## SECTION 15: REGULATORY INFORMATION

### 15.1 US Federal Regulations

<b>Water (7732-18-5)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
<b>Urea (57-13-6)</b>	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

### 15.2 US State Regulations

<b>Urea (57-13-6)</b>	
U.S. - Minnesota - Hazardous Substance List	
U.S. - Texas - Effects Screening Levels - Long Term	
U.S. - Texas - Effects Screening Levels - Short Term	

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

<b>Revision Date</b>	: 09/23/2014
<b>Other Information</b>	: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

SDS US (GHS HazCom)