

## Rely On DEF Delivery Solutions

Your Diesel Exhaust Fluid distributor should offer a variety of packaging and delivery solutions specific to your needs.

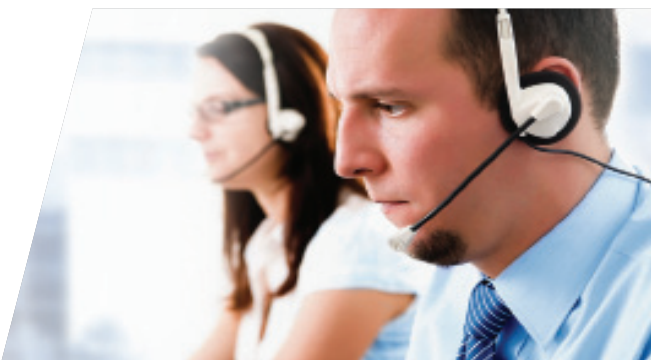
Whether you require 400 or 5,000 gallons, delivery to your location can be completed in a variety of ways:

- Customer Pick-Up - All package sizes can be picked up at a Brenntag stocking location using one of your company owned vehicles or a common carrier.
- Package Delivery - Brenntag will deliver a variety of packages to your loading dock, regardless of the package size.
- On-Site Fill - Brenntag will come to your facility and fill as little as 400 gallons on-site. The Brenntag On-Site-Fill (OSF) systems can pump DEF into bulk tanks or into refillable totes exclusively designed by Brenntag.

## Expect Outstanding Customer Service

Brenntag's customer support representatives specialize in DEF and understand our customers and the industry's requirements. We offer additional services to help lower your transactional costs and assure order accuracy for local and global customers:

- Centralized Order Entry
- Single Remit to Billing
- On-line Ordering
- Customized Purchasing Reports



## How DEF Works

Due to the 2010 Diesel Emissions Standards implemented by the Environmental Protection Agency (EPA), Diesel Exhaust Fluid (DEF) was developed to be used in conjunction with Selective Catalytic Reduction (SCR) to reduce harmful pollution from heavy duty diesel vehicles by more than 90%.

Through the combination of SCR and UltraPure® DEF, particulate matter emissions are reduced by breaking down NOx into harmless nitrogen and water molecules. With the use of DEF, 2.6 million tons of smog-causing NOx emissions will be reduced yearly.

### WHAT IS SCR

- Selective Catalytic Reduction (SCR) Technology uses DEF, a solution comprised of 32.5% urea and 67.5% de-ionized water, to reduce NOx emissions to near zero levels.
- SCR is a well established, safe technology that is already used in the denoxing of power plants burning fossil fuels.

### ADVANTAGES OF SCR

- Better fuel economy
- Meets 2010 vehicle emission standards for diesel engines
- Improves engine lubrication and filter life

### DEF BRANDED PRODUCTS

UltraPure® DEF is suitable for all OEM equipment utilizing SCR technology to meet global EPA NOx reduction standards, including ISO22241, AUS32, DIN70070. Although an OEM may promote their own branded DEF, their products are manufactured to the same ISO-22241 specifications as UltraPure® DEF.

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## Connecting Chemistry



## OFF-ROAD SOLUTIONS

a guide to purchasing Diesel Exhaust Fluid (DEF)

## Brenntag Diesel Exhaust Fluid (DEF)

UltraPure® DEF Delivered in the United States & Canada

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# Diesel Exhaust Fluid

## About Us

Brenntag is the world's largest full-line chemical distributor supplying Diesel Exhaust Fluid (DEF).

Brenntag has built an extensive network of distribution sites around the globe with over 13,500 employees at more than 490 locations in 72 countries worldwide.

Brenntag North America offers localized service at more than 140 locations throughout the United States and Canada. Our value added services include:

- Company Owned & Operated Fleet
- Product Tested & Quality Assured DEF
- ISO Certified
- Dispensing Equipment Options
- Just-In-Time Delivery
- On-line Order Tracking
- Centralized Purchasing & Billing



## Establish Your DEF Needs

As a first step in the DEF buying process, determine how much Diesel Exhaust Fluid you will need. Depending on the application, DEF consumption for Tier 4 vehicles will be approximately 2-5% of your diesel fuel consumption. Consult your equipment manufacturer for specific dosage levels.

Diesel Fuel Gallons Per Week	Projected DEF Usage		
	Per Week	Per Month	Per Year
1,000	30	120	1,440
3,000	90	360	4,320
5,000	150	600	7,200
10,000	300	1,200	14,400
20,000	600	2,400	28,800
40,000	1,200	4,800	57,600
80,000	2,400	9,600	115,200
100,000	3,000	12,000	144,000

*\* This based on 3% dosage rate. Your rate may be higher based on the type of equipment and application. Consult the equipment OEM for precise dosage estimates.*

## PACKAGE OPTIONS

### 2.5 Gallon Jug (9.47 L)

Jugs come in pallet quantities containing 80 jugs. Jugs are equipped with a single-use, easy reach, flexible dispensing nozzle designed to fit DEF vehicle fill ports, and do not require any equipment.



### 55 Gallon Drums (208.2 L)

Drums are delivered 4 drums per pallet, 220 gallons total, and have a 2-inch bung connector for connection to a manual or electric pump.



### 330 Gallon Tote (1,249.2 L)

A tote or IBC can be used by customers as a storage tank. We offer one-way, returnable and refillable totes. Brenntag's unique refillable totes include a fill port and a connector for a pump for on-site fill.



### Mini-Bulk & Bulk

Mini-bulk quantities range from 330 gallons to 2,000 gallons and bulk quantities are considered anything over 5,000 gallons.



## Finding the Right Equipment Solutions

DEF should be kept in 'closed' containers to prevent contaminants from entering the product, which can lead to clogged filters and injectors.

Brenntag has joined forces with several equipment manufacturers to assist in offering dispensing systems to meet your needs. Equipment options can be discussed with your DEF sales representative.

## EQUIPMENT SOLUTIONS BY PACKAGE SIZE

### Drum and Tote

The most common method for a drum or tote is an electric pump, which hangs on the side of the tote. The pump has a meter, an automatic dispenser nozzle, and is powered by 110VAC.



Brenntag has a unique four-hole tote system with a fast fill port, a pump connection, and vent. This allows Brenntag to get on and off your lot quickly, while the pump remains installed.

### Mini-Bulk

Mini-bulk systems are typically plug and play, and come in a variety of options and sizes at different price points. Mini-bulk solutions come non-insulated or insulated for outdoor cold climates. A weights and measures meter can be added for retail sales applications.



### Bulk

Bulk storage tanks are available for requirements of 5,000 gallons or more in both above and below ground options. These tanks typically require custom installation.



## Demand DEF Quality

Insist on high quality, API Certified, Diesel Exhaust Fluid to keep your trucks running efficiently. DEF should only be purchased from companies that provide proof that they follow these standards.

When urea arrives at Brenntag in forms such as concentrate, prill, or finished product, it must undergo an extensive testing process to assure consistent quality. Brenntag is the only North American DEF distributor with the following lab capabilities:

- 35 labs testing for DEF quality & concentration
- 7 labs capable of testing to all 18 critical DEF parameters required by ISO 22241

## BENEFITS OF ULTRAPURE® DEF

- High quality, formaldehyde-free, NOx reducing treatment specifically formulated for diesel engines
- Meets stringent AUS 32, DIN 70070, ISO 22241 purity and concentration standards
- Safe, environmentally friendly approved solution for use in passenger cars, trucks, construction/agriculture/mining equipment, and marine vessels

## Ensure DEF Availability

Urea is produced by a limited number of manufacturers. Shortages, due to demand and plant shut downs, can leave you without product. Dealing with a large supplier offering global resources, various supply assurances, and contingency options is the right way to go.

To ensure product availability, Brenntag offers the following logistical advantages:

- 30 DEF rail terminals throughout the United States & Canada
- DEF delivered to customers in over 30 countries
- Over 1 million gallons of bulk storage capacity