

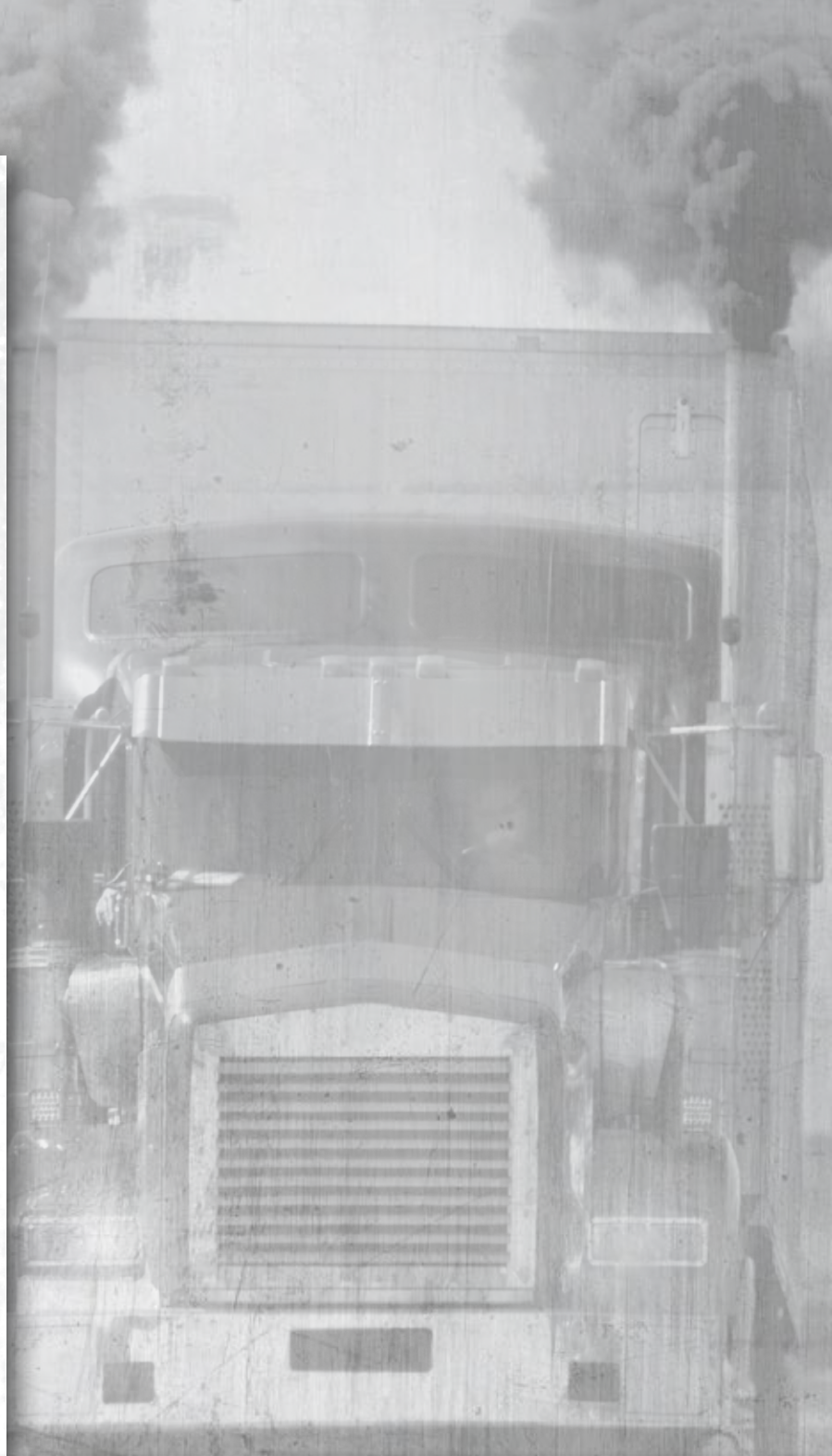
**REDUCING  
EMISSIONS**

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**ENSURING  
PRODUCT  
QUALITY**

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**RIGHT SIZING  
INVENTORIES**

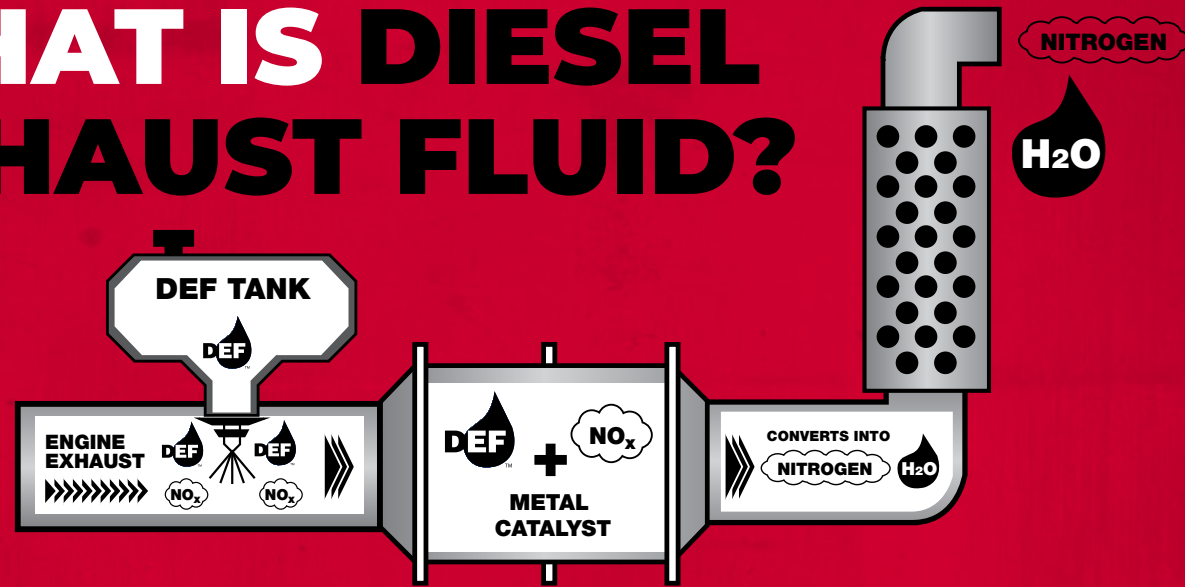


**YOUR CHALLENGES. OUR SOLUTIONS.**



Fuels | Lubricants | Knowledge | Service

# WHAT IS DIESEL EXHAUST FLUID?



FS DEF is the clear, non-toxic, non-flammable and non-hazardous fluid utilized by the Selective Catalytic Reduction (SCR) systems to reduce Nitrogen Oxide (NOx) emissions.

DEF begins to freeze into a crystalline slush at 12°F, ensuring that both components freeze and thaw at the same rate and maintaining a uniform solution.

## PRODUCT PURITY

A solution of 32.5% automotive-grade urea and 67.5% de-ionized water. Automotive-grade urea is uncoated and not treated with formaldehyde, making it a higher-purity product than agricultural urea, a fertilizer.

De-ionization removes minerals such as sodium, calcium, iron and copper as well as anions such as chloride and sulfate.

## IMPORTANCE OF PURITY

The components of a Selective Catalytic Reduction system have very little tolerance to impurities.

Less than one-tenth of one teaspoon of minerals commonly found in tap water, dust, pollen, lube oils, fuels and the air we breathe can begin to cause damage within the system.

Common problems from impurities include

- Formation of gummy deposits
- Clogged DEF injectors
- Damage to the SCR catalyst

These changes to the system lead to increased DEF consumption, loss of power, error codes and ultimately system failure.

Mineral	Common Mineral Sources	Teaspoons/ 4,800 gal.
Aluminum	Soil and Equipment	0.7
Calcium	Fertilizer, Tap Water and Lubricants	1.3
Chromium	Equipment	0.1
Copper	Fertilizer and Equipment	0.1
Iron	Fertilizer and Soil	0.3
Magnesium	Fertilizer, Tap Water and Soil	1.2
Nickel	Equipment	0.1
Phosphorus	Fertilizer, Soil and Lubricants	1.1
Potassium	Fertilizer, Soil and Tap Water	2.3
Sodium	Tap Water	2.1
Zinc	Fertilizer and Lubricants	0.1

## ENSURING PURITY

Proper handling of DEF is critical to the function of the SCR catalyst; operating through a closed system provides that protection.

Transferring DEF through Micro Matic dry disconnect couplers allows the storage tank as well as the pumping system to be sealed off, protecting against outside contaminants.

Other ways to protect the integrity of DEF is using containers specifically designed and dedicated to the transfer of DEF.



## STANDARD PACKAGING



FS DEF is delivered in sealed packages and containers.

FS DEF 2.5 gallons are equipped with a nozzle to provide easy pouring.

FS DEF drums require additional equipment to maintain the closed system.

FS DEF totes arrive equipped with the Micro Matic valve needed to maintain the closed system.

## EQUIPMENT

Storage and transfer of DEF can be handled in numerous ways. While DEF is not harmful in nature, the urea solution is strongly corrosive to certain metals; therefore, DEF should be stored and transferred through Stainless Steel or HDPE (High-Density Polyethylene) equipment.

A large selection of equipment is available to help customize a DEF storage and transfer solution that fits any need, from 2.5-gallon containers to bulk deliveries.





[fssystem.com](http://fssystem.com)