



Diesel Exhaust Fluid



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Q: What is BlueDEF®?

A: BlueDEF® is the fluid (known as Diesel Exhaust Fluid) that is used in Selective Catalytic Reduction (SCR) systems on diesel engines to reduce NOx.

Q: What is Selective Catalytic Reduction (SCR)?

A: SCR is an acronym for Selective Catalytic Reduction. SCR is a technology that uses a urea based diesel exhaust fluid (DEF) and a catalytic converter to significantly reduce oxides of nitrogen (NOx) emissions. SCR is being used by almost all OEM manufacturers.

Q: How does an SCR System work?

A: The purpose of the SCR system is to reduce levels of NOx (oxides of nitrogen emitted from engines) that are harmful to our health and the environment. SCR is the after treatment technology that treats exhaust gas downstream of the engine. Small quantities of diesel exhaust fluid (DEF) are injected into the exhaust upstream of a catalyst, where it vaporizes and decomposes to form ammonia and carbon dioxide. The ammonia (NH₃) is the desired product which in conjunction to the SCR catalyst, converts the NOx to harmless nitrogen (N₂) and water (H₂O).

Q: What is BlueDEF® for?

A: When used in an SCR system BlueDEF will reduce the levels of NOx emissions of those engines.

Q: What is the composition of BlueDEF®?

A: BlueDEF® is a high-purity, 32.5 strength urea solution and deionizer water.

Q: What is Urea?

A: Urea is a compound of nitrogen whose aqueous solution generates ammonia when heated. It is used in a variety of industries, including as a fertilizer in agriculture.

Q: Why use a 32.5% urea solution?

A: The 32.5% urea concentration is the lowest freezing point for water urea solutions. Thus, the SCR systems will be calibrated to the 32.5% solution, so that optimum NOx will be reduced during operation.

Q: What is the freeze point of DEF?

A: A 32.5% solution of DEF will begin to crystallize and freeze at 12 deg F (-11 deg C). Freezing does not harm the quality of the DEF solution. Upon thawing, DEF will perform as required.

Q: How do I keep the DEF from freezing? What happens if the DEF freezes in the tank on the vehicle?

A: During vehicle operation, SCR systems are designed to provide heating for the DEF tank and supply lines. If DEF freezes when the vehicle is shut down, start up and normal operation of the vehicle will not be inhibited. The SCR heating system is designed to quickly return the DEF to liquid form and the operation of the vehicle will not be affected.



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Q: Does DEF expand when frozen?

A: Yes, DEF expands by approximately 7% when frozen. DEF packaging and tanks are designed to allow for expansion.

Q: Are there any quality standards the DEF must meet?

A: Yes, DEF needs to meet the ISO 22241 quality standard.

Q: Is it hazardous, toxic or flammable?

A: No, BlueDEF is classified as non hazardous, non toxic or flammable.

Q: Is DEF corrosive?

A: DEF is corrosive to copper and brass as well as other materials. Only approved materials as listed in the ISO 22241 standards should be used in contact with DEF.

Q: Why is the SCR system, requiring DEF being incorporated into diesel vehicles?

A: The EPA has mandated the reduction of NOx emissions released into the environment. In particular, the new 2010 requirements

Q: How will BlueDEF be carried on the vehicle?

A: BlueDEF is stored in a designated tank on the vehicle. It is then replenished like fuel.

Q: What happens if the vehicle runs out of DEF?

A: Vehicles will be equipped with a DEF gauge on the dash to alert the driver on the fluid level. If the level becomes low an alert will let the driver know the DEF level needs to be replenished. If the driver runs out completely the vehicle power will be reduced to encourage the operator to refill the DEF tank. Once the DEF tank is refilled, normal power levels will be restored on the vehicle.

Q: Does BlueDEF mix with fuel?

A: No, It is not an additive. It is sprayed into the exhaust stream where it reacts with the NOx in the SCR system to form Nitrogen and Water.

Q: How much DEF will I need?

A: DEF is consumed at a rate of approximately 2-3% by volume to diesel consumption.

Q: Does the BlueDEF program offer equipment?

A: Yes, we offer a full line of dispensing solutions for fleets, truck stops and all other end users.

Q: When and how is BlueDEF available?

A: It is available now through Old World Industries or an authorized Old World supply partner.