

# Are You Ready For DEF ?

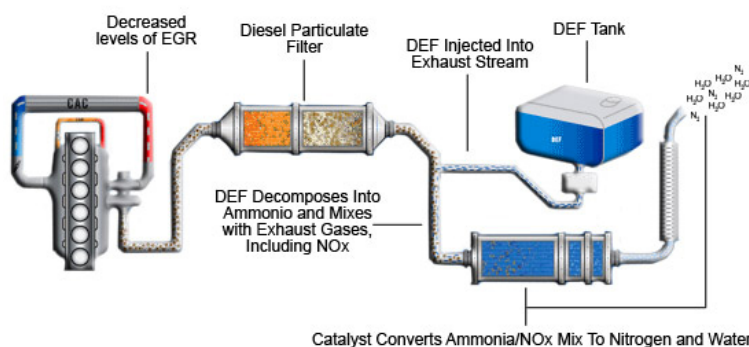
## DIESEL EXHAUST FLUID (DEF)

### Selective Catalytic Reduction (SCR): Meeting 2010 Emission Regulations

EPA's 2010 Diesel Engine Emission Standards will require engine manufacturers to further reduce the amount of nitrogen oxides (NOx) emitted. To reach these NOx emissions levels, several engine manufacturers will employ selective catalytic reduction (SCR) as an after-treatment technology that when combined with exhaust gas recirculation (EGR), will reduce NOx emissions to the level prescribed by EPA's 2010 standards. SCR is a proven technology that is currently being used in mobile applications in Europe & stationary applications here in the US. The combined SCR/EGR NOx reduction system needed to meet EPA's 2010 standard is new.

**Selective Catalytic Reduction (SCR)** - 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 (NH<sub>3</sub>) is the desired product which in conjunction to the SCR catalyst, converts the NOx to harmless nitrogen (N<sub>2</sub>) and water (H<sub>2</sub>O). This means that trucks will have to carry a sufficient quantity of DEF on-board. Depending upon the capacity of the DEF tank, the SCR system is expected to add 300-400 pounds to the weight of a Class 8 truck.

**Diesel Exhaust Fluid (DEF)** - This is an operating fluid for Selective Catalytic Reduction (SCR) technology, which will be in new heavy duty commercial vehicles from 2010. DEF is not a fuel or fuel additive; it is injected into the exhaust system to chemically reduce NOx emissions from diesel powered vehicles. DEF is a carefully blended aqueous urea solution of 32.5% high purity urea and 67.5% de-ionized water complying with the Standards of ISO 22241. DEF consumption is expected to be approximately 2% of fuel consumption, depending on vehicle operation, duty cycle, geography, load ratings, etc. This is the highest quality and safety standard in place which ensures the correct functioning of SCR equipment. Most engine manufacturers chose SCR over competing technologies due to the fuel economy benefits of SCR as compared with other options. SCR is expected to improve overall fuel economy by approximately 5%.



### Call Your Local PSI Sales Representative For More Details

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