

# **DIESEL EXHAUST FLUID - DEF**

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**Motosel Diesel Exhaust Fluid (DEF)** is an aqueous urea solution blended with 32.5% high purity urea and 67.5% deionized water. DEF solution is used in Selective Motosel Reduction to lower NOx concentration in the exhaust emissions of diesel engines.

Motosel DEF is API licensed and meets the requirements of ISO 22241 standard. The market for DEF is being created due to the emission requirements promulgated by the EPA to meet the Clean Air Act specifications. As depicted below, the progressive reduction in diesel emissions has driven tremendous changes in engine requirements over the past 25 years. These efforts have been focused on reducing particulates, sulphur, and NOx emissions. DEF is focused on meeting the 2010 requirement for NOx emissions reductions. The specific approach used to reduce NOx emissions requiring DEF is referred to Selective Motosel Reduction. uses a chemical called Diesel Exhaust Fluid (DEF / Urea) and converter to significantly reduce nitrogen oxide (NOx) emissions in diesel engines. This has been selected by all major engine manufacturers as their method to meet the 2010 specification.

### **DEF is:**

- Diesel Exhaust Fluid (DEF) or Urea
- 32.5% Aqueous Urea Solution (ammonia) in demineralized water
- DEF consumption approximately 2% of fuel consumption
- DEF is a non-toxic, non-polluting and non-flammable substance
- May have slightly pungent odor similar to ammonia
- YES – DEF Does Freeze at 11 degrees F, and may need to be stored inside or in heated storage units
- If DEF freezes, it can be thawed and used
- DEF is not damaged or destroyed because it is frozen
- Maintenance, performance, drivability & durability the same as today

Motosel technology is designed to permit nitrogen oxide (NOx) reduction reactions to take place in an oxidizing atmosphere. It is called "selective" because it reduces levels of NOx using ammonia as a reductant within a Motosel system. The reducing agent reacts with NOx to convert the pollutants into nitrogen, water and tiny amounts of carbon dioxide (CO2) – natural elements common to the air we breathe everyday. The reductant source is usually automotive-grade urea, otherwise known as Diesel

**Exhaust Fluid, which can be rapidly hydrolyzed to produce the oxidizing ammonia in the exhaust stream. Motosel technology alone can achieve NOx reductions in excess of 90%.**



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**HANDLING AND SAFETY INFORMATION** - Refer to MOTOSEL (SDS) Safety Data Sheets for proper handling and safety information. Use the same care and handling as for any petroleum product. Nothing herein shall be deemed to constitute a warranty, express or implied, that said information or data are correct or that the products described are merchantable or fit for a particular purpose, or that said information, data or products can be used without infringing patents of third parties.



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