



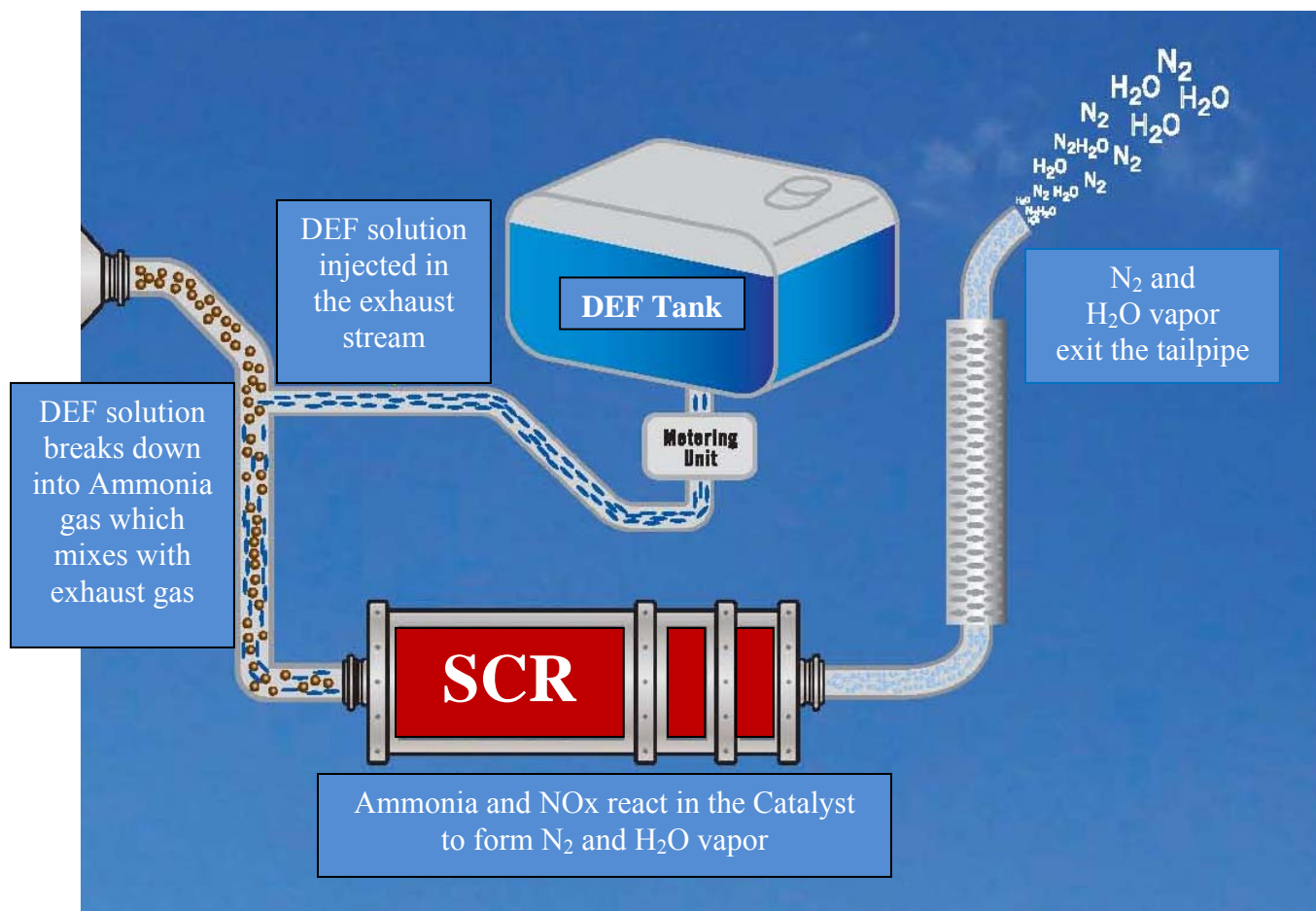
Fact Sheet Diesel Exhaust Fluid (DEF)



What is DEF and Why is it Needed?

Recent changes to EPA emission standards for diesel engines will require some diesel engine makes to use a new control device called selective catalytic reduction (SCR). This new emissions equipment uses a fluid called Diesel Emission Fluid (DEF) to reduce tail pipe emissions. DEF is a mixture of water (nearly 70%) and urea. Urea, a common fertilizer ingredient, is dissolved in water and stored in a reservoir onboard a diesel powered truck or car.

How does the SCR System Work? The DEF solution reacts with pollutants in the presence of a catalyst to reduce the pollutants to harmless gases. Onboard the truck, the urea solution is injected upstream of the SCR catalyst. The solution is vaporized in the hot exhaust stream and breaks the urea solution down into ammonia and water vapor. This ammonia- the actual reducing agent in the SCR system- reacts with nitrogen oxides (NOx) from the diesel engine to neutralize them into Nitrogen (N₂) and Water (H₂O) vapor.



SCR System

Will DEF be sold at Truck Stops, Maintenance Shops and Dealers Next Year? Consumption of the urea solution on a model year 2010 truck is expected to be about 2% of the diesel consumption. For every 50 gallons of diesel fuel burned the heavy duty truck will use about 1 gallon of DEF. Heavy duty diesel trucks will need to refill the 20-30 gallon tank of DEF about every 4,000 to 6,000 miles. DEF will be sold through on-island bulk dispensers or in prepackaged containers and should be widely available after 2010 at truck stops, maintenance shops and truck dealers. Car dealers which sell diesel powered cars may also carry DEF.

How much will DEF cost? DEF costs are driven by the price of urea with volume discounts for bulk purchases of DEF. The retail price of DEF is expected to vary from \$2 to \$6 per gallon depending upon the quantity purchased (note small containers of DEF sold at automobile dealerships will likely be priced higher).

Are there any air quality concerns with DEF? DEF is classified as a “nonhazardous material” by the Environmental Protection Agency (EPA) as the urea in the DEF mix is a naturally occurring substance, is nonflammable, and is biodegradable.

What are the potential health effects? It may be harmful if swallowed. It may cause nausea, vomiting, headache and other central nervous system effects. It may irritate the eyes and skin with prolonged exposure.

What are the first aid measures? If DEF is vaporized by a hot surface to release ammonia, immediately remove the affected person to fresh air and administer CPR if breathing has stopped. On skin contact, remove contaminated clothing and wash affected areas with soap and water. On eye contact flush with plenty of water. On ingestion, do not induce vomiting. Call for medical assistance if symptoms develop and persist.

What happens in case of a fire? Urea in a fire situation will release carbon oxides, nitrogen oxides, ammonia, and other irritating fumes and smoke.

How should spills be contained? DEF spills should be contained and absorbed with an inert, noncombustible absorbent material such as sand. Spills into a drain should be avoided. If DEF gets spilled into a drain, flush thoroughly with water. DEF is also corrosive to certain metals such as copper, brass and some grades of aluminum, which is why DEF storage tanks are made from high density polyethylene, a heavy durable plastic.

For spills with significant quantities, contact local authorities for proper disposal procedures or the Florida State Watch Office:

For Emergencies: 1-800-320-0519 or for Non-Emergencies: 1-850-413-9900

TDD Emergencies & Non-Emergencies: 1-800-226-4329

For information on Florida's emergency preparedness visit:
www.floridadisaster.org/Response/Operations/swp.htm

References: North American SCR Stakeholders Group and editor of *FactsAboutSCR.com*, a Web site dedicated to SCR news, Environmental Counsel for American Trucking Associations, International Center for Soil Fertility and Agricultural Development (IFDC), www.CumminsFiltration.com, US Environmental Protection Agency.