

## E-Diesel (Oxygenated Diesel)

### General

E-Diesel is well positioned to play a role in the evolution of cleaner diesel systems. In order to make use of existing infrastructure for liquid fuels Pure Energy has combined diesel's positive attributes with cleaner burning renewable ethanol to run in unmodified diesel engines. The fuel is a liquid blend of low-sulfur No.2 diesel fuel, 15% ethanol and a small amount of a proprietary additive designed to stabilize the fuel and improve performance. The presence of ethanol improves the emissions profile substantially when compared to regular neat diesel.

### Performance Characteristics

- **Composition:** 80 - 84% Low sulfur No. 2 diesel, 15% fuel ethanol, 1 5% PEC additive package (2% average is expected)
- **Cetane:** 42 to 45 (using #2 diesel with Cetane of 40)
- **Low Temperature Performance:** E-Diesel is stable to at least -22 oF (no separation and unlike diesel, does not gel)
- **Energy Content:** E-Diesel - 126,000 to 128,000 Btu/gal vs diesel ~ 135,000 Btu/gal
- **Fuel Economy:** Tests to date show about 2%-6% less mileage
- **Sulfur:** Sulfur is reduced 16 20% from the base diesel
- **Blending:** E-Diesel can be "in-line" or splash blended at the terminal using existing equipment, facilities and blending techniques.
- **Lubricity:** 5,200 vs. 3,100 for No. 2 Diesel
- **Water Tolerance:** Designed to tolerate water exposure from storage and distribution
- **Biodegradable:** Readily biodegradable in standard 28 day ASTM test (Method E1720-95)
- **Emissions:** Testing at Southwest Research Institute has confirmed 41% reduction in PM, 5% reduction in NOx and 27% reduction in CO as compared with No.2 LS Diesel using EPA Federal Test Procedure for heavy-duty diesel engines.