

SOUTHWEST RESEARCH INSTITUTE



**DIESEL FUEL TREATMENT
FORMULA 462**

Fleet Tested : 16 1990 Cummins 315 engines in Navistar Tractors
Route: East Coast (Florida to New England)

8 Trucks using Standard Diesel Fuel	(ECA 13900)	8 Trucks using Premium Diesel Fuel
Mileage Total 368 K. Miles @ 5.92 MPG		Mileage Total 347 K Miles @ 6.22 MPG

4.8% improvement

Trial continuing through **290 K miles** / truck for EPA transient cycle emission

Treatment Characteristics

De Foamer:

1. Better filling
2. Faster Filling

Corrosion Inhibiter & Demulsifier:

1. Corrosion
2. Tank Deposits
3. Filter Life
4. Pump & Injector wear

Stabilizer Benefits:

1. Injector Fouling
2. Pump Deposits
3. Filter Plugging
4. Emissions

Lubricity Benefits:

1. Pump & Injector Wear

Cetane Improver Benefits:

1. Maximum Power Output
2. Fuel Consumption
3. Cold Operatability
4. Cold Start
5. White
6. HC, CO, Nox & Particulates
7. Noise

Detergent Benefits:

1. Injector Fouling
2. White Smoke
3. Gaseous Emissions
4. Particulate Matter
5. Black Smoke
6. Fuel Economy
7. Engine Noise
8. Combustion
9. Exhaust Temperature

SUMMARY:

1. REDUCTION IN FUEL INJECTOR FOULING AND ASSOCIATED CHANGES IN COMBUSTION PERFORMANCE
2. IMPROVEMENT IN COLD STARTING AND A REDUCTION IN COLD START EMISSIONS
3. IMPROVEMENT IN FUEL ECONOMY
4. IMPROVEMENT IN OXIDATION FUEL STABILITY
5. REDUCTION IN FUEL SYSTEM CORROSION
6. REDUCTION IN FUEL FOAMING
7. IMPROVEMENT IN FUEL LUBRICITY PROPERTIES
8. REDUCTION IN UNPLEASANT FUEL ODORS
9. CONTROL OF FUEL - WATER SHEDDING PROPERTIES REDUCTION OF EMISSION VIA CLEAN ENGINES



Dear Mr. Sir,

The following are the test results on an oil sample sent for the following tests.

Sample I.D. ; SAPL

TESTS	RESULTS
1. Falex E.P. Properties ASTM D-3233	
Procedure A True Load Failure, lb-f	3150
Procedure B True Load Failure, lb-f	3000
2. Falex Wear Properties: ASTM D-2670	
at 865 ft-lb, number of teeth wear	NONE
3. Extreme Pressure Properties, ASTM D-2783	
Load Wear Index	88.92
Weld Point, Kg	500
4. Wear Preventive Properties, ASTM D-2266	
Average Scar Diameter mm	0.87
5. Timken, OK Load, ASTM D-2782 lbs.	60
6. Viscosity at 210°F cSt, ASTM D-445	50.7
SUS	235.77
7. Viscosity at 210°F cSt, ASTM D-445	7.0
SUS	49.01
8. Viscosity Index Calculation D-2270	104.0
9. Pour Point, °C ASTM D-47	-21
10. Flash Point, ASTM D-56, °F	275
11. Flash Point, ASTM D-92, °F	315
12. Flash Point, ASTM D-93, °F	270
13. Coefficient of Friction, ASTM D-2266, modified	0.0223
14. Salt Spray Test, 100 hours at 5% Salt Solution	No Rust

Sincerely,
 Geronimo A. Estrada
 manager - Special Projects
 Petroleum Products Research Dept.
 Automotive Products & Emissions Res.