



Oil Treatment for Diesel Engines

Description

STP Oil Treatment for Diesel Engines uses an exclusive formula to fortify motor oil with an extra measure of additives, providing increased levels of detergent/dispersant, viscosity improver, anti-wear and anti-friction agents. Specially developed following extensive research and testing, this product has been designed specifically for all diesel engines, providing essential additives found in premium quality diesel engine oils and, when used between oil changes, will replace burnt out minerals and additives in the oil to reduce diesel operating costs. It is 'shear' stable to help stop diesel fuel dilution, and also increases Total Base Number (TBN) to neutralise acids.



Benefits of Using STP Oil Treatment for Diesel Engines

STP Oil Treatment for Diesel Engines used regularly helps:

- Reduce engine deposits
- Fight corrosion
- Provide extra engine protection
- Reduce engine wear
- Prevent piston deposits in the ring zone
- Reduce oil consumption by over 50%
- Improve oil viscosity
- Stop diesel fuel dilution
- Extend over-haul periods

STP Oil Treatment for Diesel Engines:

- Is excellent for all diesel engines, old or new
- Is fortified with detergents/dispersants
- Is specially designed for and tested in major diesel engines
- Can be used in turbo powered vehicles
- Can be used with other STP additives
- Is not recommended for use in petrol engines

How STP Oil Treatment for Diesel Engines Works

To keep diesel engines in peak condition they need special oils to perform five important functions:

- a) reduce frictional resistance between moving parts
- b) protect against corrosion and wear
- c) provide a seal between piston rings and the cylinder walls
- d) cool the engine
- e) reduce the formation of deposits on engine surfaces and facilitate the removal of combustion by-products from the crankcase.

To perform these functions, the engine oil has to be a well balanced chemical system of different components, such as detergents, dispersants, corrosion inhibitors, anti-oxidants, friction reducers and viscosity index improvers. Each of these additives plays an important role in providing optimum lubrication performance in a diesel engine. Used together, they must provide an oil with the ability to improve high temperature soot deposition control, corrosive wear, ring sticking, bore polishing, and piston deposits as well as help to reduce oil thickening and oil consumption. However, the additives that protect against the effects of combustion by-products are either consumed or made inactive during the normal combustion process, and engine protection will eventually fall below optimum levels.

STP Oil Treatment for Diesel Engines is a balanced additive supplement which has been carefully formulated to complement host diesel oil "systems", combating the harmful effects of by-products formed during normal engine operation. This STP engine oil additive technology offers significant benefits to reduce diesel operating costs, but does not significantly alter the physical properties of the oil. Extensive laboratory engine dynamometer tests and over 80 million miles of field testing, involving engines from the major diesel manufacturers, indicate that, when used in conjunction with a typical diesel engine oil, STP Oil Treatment for Diesel Engines:

- Reduces piston ring and liner wear by an average of 25%
- Reduces oil consumption by over 50%
- Provides excellent piston cleanliness
- Increases engine life due to reduced wear and deposits.

STP Oil Treatment for Diesel Engines has been designed for and tested in major diesel engines, and is intended for use in both new and used engines.

STP Oil Treatment for Diesel Engines Improves Protection, Increasing Engine Life

Compression in a diesel engine is higher than in a petrol engine, which leads to higher temperatures in the combustion chamber and to easier ignition. STP Oil Treatment for Diesel Engines contains Viscosity Index Improvers which provide a greater level of protection to the engine at a wider range of temperatures by improving the viscosity, allowing the oil to keep all internal moving parts lubricated even at extremely high and low engine temperatures.

STP Oil Treatment for Diesel Engines Fights Deposits and Corrosion, Increasing Engine Life and Reducing Wear

Solids, observed as sludge and deposits, result from incomplete fuel combustion and oxidation of engine oil. Acids are another inevitable by-product, formed during combustion and as a result of oil oxidation. To protect against the wearing effects of the solids and the corrosiveness of these acids, engine oils use detergents, dispersants and neutralisers. STP Oil Treatment for Diesel Engines can be thought of as a “booster shot” of detergents and dispersants.

The detergent in STP Oil Treatment for Diesel Engines effectively cleans deposits, varnish and sludge from the metal surfaces of the engine, and they are then carried away through the exhaust system by the dispersant.

Equally important, its unique chemistry provides an extremely high level of acid-neutralising compounds. Total base number (TBN) is a measure of alkalinity. Typical oils have a TBN of 7, but a 5% concentration of Oil Treatment for Diesel Engines increases TBN to 10 – over 40% more alkalinity for extra protection against acid corrosion. The protection against solid and acid by-products lasts throughout the oil change interval, for greater efficiency and longer engine life.

Directions for Using STP Oil Treatment for Diesel Engines

One 300ml can of STP Oil Treatment for Diesel Engines will treat 6 litres of diesel oil (5% treat rate). The entire can should be added to the engine oil when the engine is warm (but not overfilled).

STP Oil Treatment for Diesel Engines can be added to the engine oil when changed or between changes, although it is best to use between changes to replace burnt out minerals and additives in the fuel.

Test Results

Both dynamometer and fleet tests were based on a typical API “CD” oil, having a TBN of 7. Untreated oil served as the control, and oil treated at a 5% level is the test.

Laboratory Dynamometer Tests

The API Engine Classification System uses well-defined engine dynamometer tests to classify oils. STP Oil Treatment for Diesel Engines was subjected to virtually all such API tests, not merely those used for CD-grade oils. Results indicated that STP Oil Treatment for Diesel Engines reduces deposits and wear, without adversely affecting other oil functions.

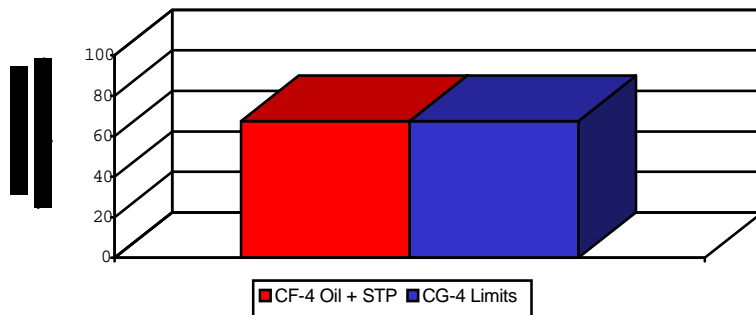
Laboratory tests were run to compare the performance of a CF-4 grade diesel oil plus STP Oil Treatment for Diesel Engines (when STP is added according to the label instructions), and a CG-4 grade of oil, and included the following dynamometer tests:

- CRC L-38
- GM 6.2L Wear
- Sequence IIIE
- Caterpillar 1N
- Caterpillar 1K
- Mack T-8

The results of each of the tests indicated that the use of STP Oil Treatment for Diesel Engines in a typical CF-4 grade diesel engine oil would reduce deposits and wear without adversely affecting other oil attributes, being equivalent to the performance of a CG-4 grade oil.

Sequence IIIE Test

Graph 1: Sequence IIIE - Improved Oil Oxidation Stability

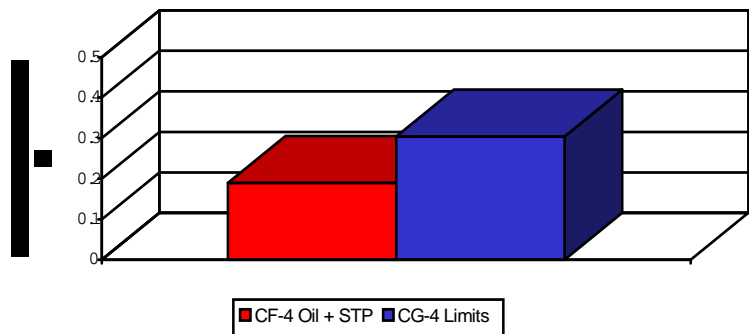


The results of the Sequence IIIE test showed a decrease in oil oxidation when STP technology was utilised, as shown in Graph 1.

Mack T-8 Testing

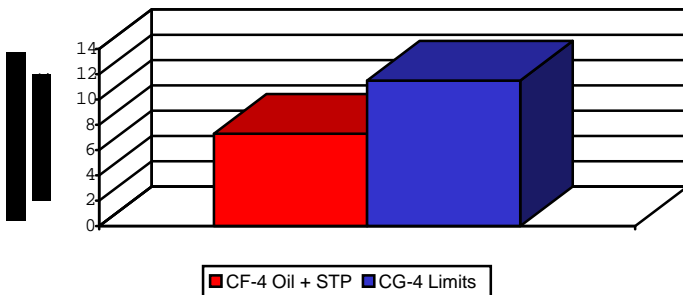
The first Mack T-8 test carried out demonstrated the potential of STP Oil Treatment for Diesel Engines, when added to a CF-4 grade oil, to reduce oil consumption at an increased rate to the CG-4 oil. This can be seen in Graph 2.

Graph 2: Mack T-8 - Reduced Oil Consumption

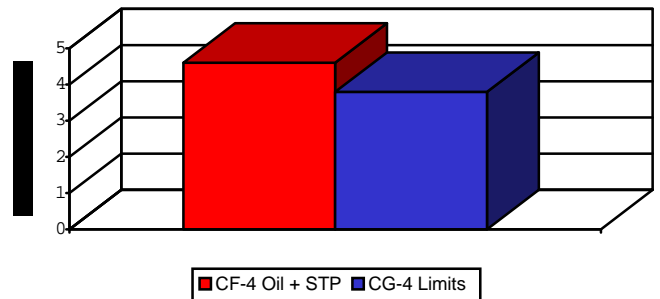


The next Mack T-8 tests showed reduced wear, as in Graphs 3 and 4, when STP Oil Treatment for Diesel Engines was added to the engine oil, providing a significant viscosity increase.

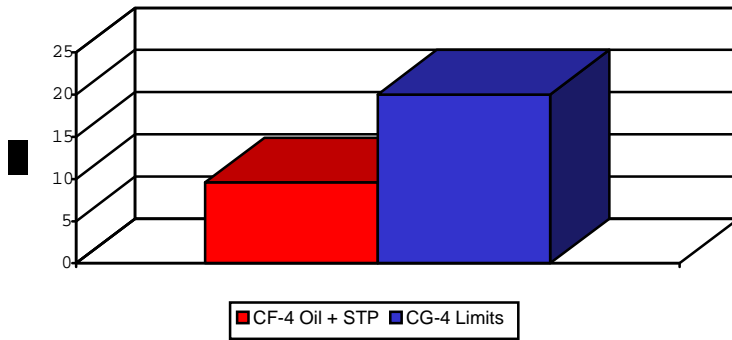
Graph 3: Mack T-8 - Reduced Wear



Graph 4: Mack T-8 - Reduced Wear



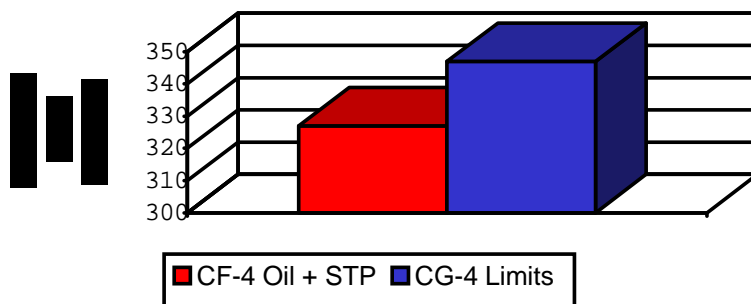
Graph 5: Mack T-8 - Filter Plugging



The last Mack T-8 test, Graph 5, was to demonstrate STP's ability to reduce filter plugging, and does so by half that of a CG-4 grade oil.

GM 6.2L Test Reduced Wear

Graph 7: Caterpillar 1K - Piston Cleanliness



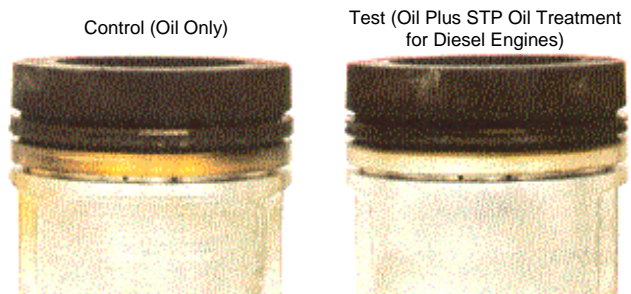
In a reduced wear test carried out on a 6.2L GM engine, as shown in Graph 6, engine wear was approximately 25% less than CG-4 limits when STP Oil Treatment for Diesel Engines was added to the CF-4 grade engine oil.

Caterpillar Test

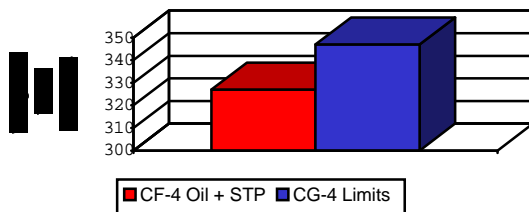
As can be seen in Image 1 STP Oil Treatment for Diesel Engines results in cleaner engine parts and fewer carbon deposits.

Several tests were carried out with Caterpillar 1K and Caterpillar 1N dynamometer engines. Graphs 7-14 show the addition of STP to a CF-4 grade oil to reduce both engine deposits and oil consumption.

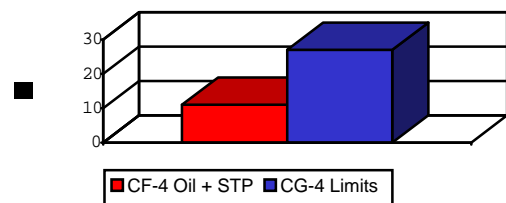
Image 1: Caterpillar Engine



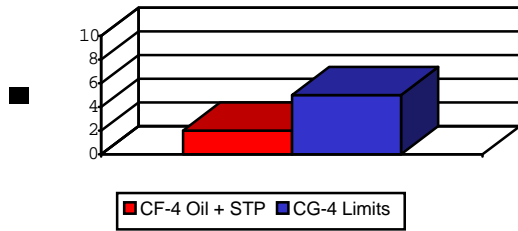
Graph 7: Caterpillar 1K - Piston Cleanliness



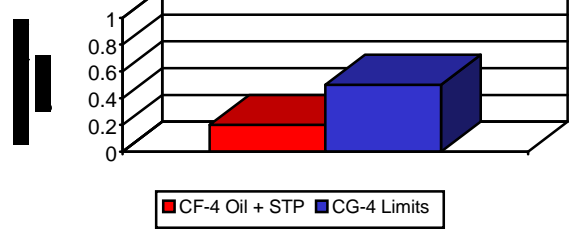
Graph 8: Caterpillar 1K - Top Grove Fill



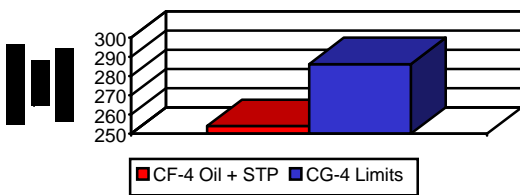
Graph 9: Caterpillar 1K - Top Land Heavy Carbon



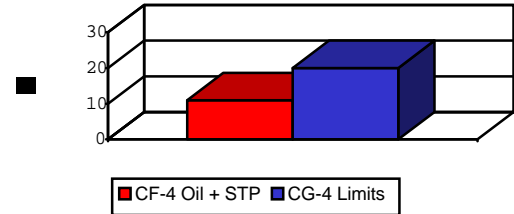
Graph 10: Caterpillar 1K - Reduced Oil Consumption



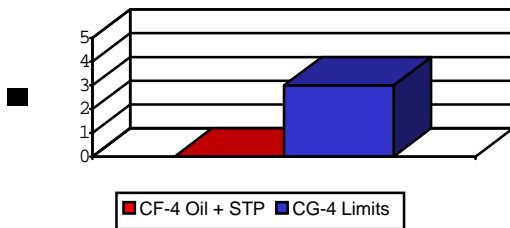
Graph 11: Caterpillar 1N - Piston Cleanliness



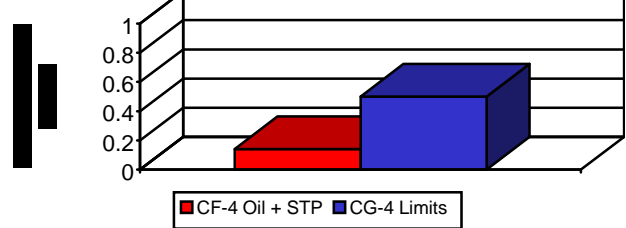
Graph 12: Caterpillar 1N - Top Grove Fill



Graph 13: Caterpillar 1N - Top Land Heavy Carbon



Graph 14: Caterpillar 1N - Reduced Oil Consumption

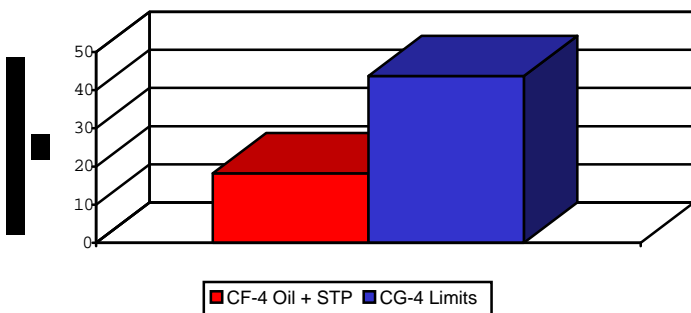


Caterpillar 1K and 1N testing for ring sticking and ring/liner scuffing resulted in none, the CG-4 limit.

CRC L-38 Test

In these tests, depicted in Graphs 15 and 16, the addition of STP Oil Treatment for Diesel Engines to a CF-4 grade oil demonstrated considerably reduced bearing weight loss and oil oxidation.

Graph 15: CRC L-38 - Bearing Weight Loss



Graph 16: CRC L-38 - Increased Used Oil Viscosity

