



ENGINE OIL ADDITIVE FM – REPAIR FOUR TRUCK DEMONSTRATION STUDY

This study is of four (4) waste collection trucks owned by a national company. It utilizes baseline engine oil analysis data and compares that to the data analyzed by the same third-party following the use of NanoMPI Engine Oil Additive FM – Repair™.

FM - Repair™ additive was added to the crankcase at a ratio of approximately one-part additive to 100-parts engine oil. FM - Repair™ is the “first-time” treatment and contains a variety of trace metals with detonation nanodiamond crystals that is used for 1,500-2,000 miles to help recondition worn engine components and set the stage for regular use of FM - Protect™ additive on a continuing basis. FM-Protect™ continues the process of developing a nanodiamond+lubricant coating on contacting metal parts such as bearings, camshafts, etc. It also plays a key role in extending the life of the engine oil additive package (as measured by the ABN) by suppressing the formation of soot through catalytic action during the combustion process.

Cost savings are realized through (a) extending engine oil life up to double, (b) reducing the cost of soot management, (c) reducing consumption of DEF, and extending the life of engine components greater than 40%. Measured results include:

- Reduced electro-spark erosion as measured by the reduced wear metals in the oil.
- The life of the additive package is extended as indicated by the reduced nitration level.
- Residual oil in the cylinder, combined with the additive, becomes part of the combustion process, significantly improving combustion efficiency as seen in the reduced soot in oil measurement. (Exhaust soot is also reduced, but is not measured in this test.)

Third- party laboratory results:

Truck	1	2	3	4
Additive metals	maintained	maintained	maintained	maintained
MSM	stabilized	stabilized	stabilized	stabilized
Wear Metals	-22%	-18%	-29%	-28%
Contaminant metals	-10%	-12%	-19%	-16%
Fuel Dilution	-12%	-10%	-19%	-16%
Soot	-25%	- 31%	-16%	- 53%
Viscosity	maintained	Maintained	Maintained	maintained
Oxidation	- 25%	- 21%	-15%	-15%
Nitration	- 20%	- 16%	-12%	- 11%

Note: soot increases oil viscosity. Reduction of soot helps maintain viscosity. (See “Get Ready for More Soot” <http://www.machinerylubrication.com/Articles/Print/51>