



Fuel System Booster



COMPLETE FUEL SYSTEM CLEANER & STABILIZER FOR USE IN GASOLINE AND DIESEL ENGINES

with patented (FLA[®]) (Fuel Lubricity Additive)

AVAILABILITY

Stock No.	Unit Size	Case Qty
77012	16 oz.	(12/c)
77012TL TRI-LINGUAL PACKAGING	16 oz.	(12/c)

DESCRIPTION:

LUBEGARD[®] Fuel System Booster is a state-of-the-art, new fuel additive, made with the highest quality premium PEA and FLA[®] technologies. It is the first product of its kind able to specifically address and treat the newer DIG (direct injection) fuel systems in addition to the traditional intake-port delivery systems of today. LUBEGARD[®] Fuel System Booster is the first 3-in-1 product that provides a total system clean-up and keep-clean, fuel lubricity additive, and fuel stabilizer.

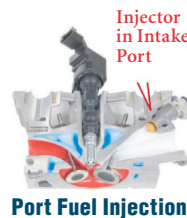
BENEFITS:

- » Contains a unique, proprietary polyether amine (PEA) detergent technology, the most effective chemistry for total fuel system cleanup that outperforms competitors
- » EPA/LAC, CARB, and TOP TIER[™] compliant
- » Ideal for new DIG fuel systems
- » Can be used in any type of engine; gasoline or diesel
- » Cleans carburetor / fuel injectors in one tank
- » Removes deposits from combustion chamber and intake valves
- » One step process, just pour in the tank, does not require aerosol
- » Prevents hesitation, rough idle, and stalling
- » Improves fuel economy and horsepower
- » Allows less expensive, lower octane fuel to be used
- » Stabilizes fuel during storage
- » Reduces emissions

DIG vs PFI:

Because fuel is delivered directly into the cylinder, DIG engines do not have a throttle plate. So it is not necessary to use an accompanying aerosol in order to perform a complete clean-up.

- » DIG Functions at far higher pressures ~2,000 psi vs. ~50 psi
- » Injection cycle is a much shorter period of time
- » Port Injection has two rotations of the crankshaft to inject the fuel. At 6,000 rpm, this is 20 milliseconds.
- » DIG occurs in a portion of the intake stroke, which occurs in 0.4 to 5 milliseconds
- » Fuel stream is much more finely atomized
- » DIG stream is 1/5th the droplet size of PFI
- » Allows increased airflow into combustion chambers



Port Fuel Injection



Direct Fuel Injection

ONE TANK CLEANS:

- ✓ Carburetors
- ✓ Port Fuel Injector
- ✓ Piston Surface
- ✓ DIG Injector
- ✓ Combustion Chamber
- ✓ Intake Valve Deposit



BMW Certification:

Testing in the standard BMW test (ASTM D 5500) using a US EPA 65th percentile fuel establishes a minimum dosage of 120 ppm LUBEGARD® Fuel System Booster for this combination of test and base fuel.

Test Method: ASTM D5500

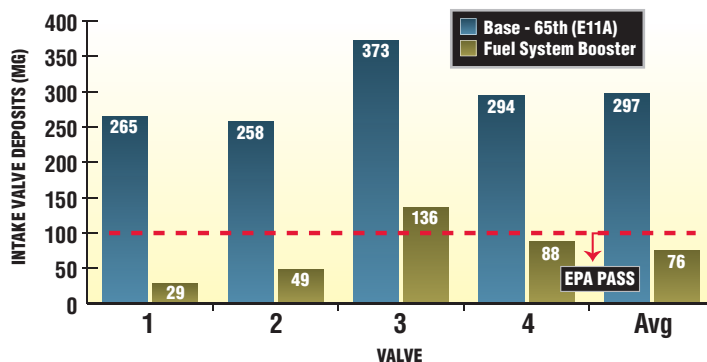
Engine: 1.8L (318i BMW)

Duration: 5,000 Miles

Fuel: Base E11A (No EtOH)

Duration: 10,100 Miles

Fuel: Base + 10.2% EtOH + LUBEGARD® Fuel System Booster



DIG Cleanup Test:

In the 1.8L Mitsubishi Carisma outfitted with GDI, an IVD cleanup test was run. Deposits were built up using a fuel containing a premium synthetic additive, then cleaned up in two tanks using 3200ppm LUBEGARD® Fuel System Booster. LUBEGARD® Fuel System Booster cleaned up 29% of the deposits left by the premium sythetic additive.



Conventional Additive



3200 ppm LUBEGARD Fuel System Booster

PFI Cleanup Test:

The pair of photos to the right represent a clean injector flow pattern (farthest right) and the corresponding image when the injector flow is restricted by 25%.

The dirtiest injector, when buildup was complete on the three tank cleanup, was 21% flow restricted. All of the dirty injectors cleaned up to within 1% of the original 100% flow.

Engine: Chrysler 2.2L tc, I-4 w/MPFI

Buildup: 999 miles

Cleanup: 1005 miles



Dirty Injector

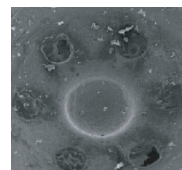


Clean Injector

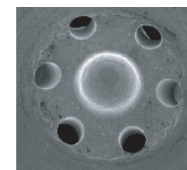
Long Term Fuel Trim (LTFT) Test Results (via OBD-2):

LTFT is an ECM algorithm for adaptive fuel trim. In order to accommodate a plugged DIG injector nozzle, the injector must stay open for longer period of time.

For this test, we used a 2012 Camaro 3.6L V6 LFX.



Dirty Injector



Clean Injector

NACE and ASTM D665A Corrosion Testing:

NACE Corrosion

	*Result
De-polarized Iso-Octane	E
400 ppm LUBEGARD® Fuel System Booster	A

ASTM D665A Corrosion (24 hours at 100 deg F.)

	*Result
De-polarized Iso-Octane	E
1400 ppm LUBEGARD® Fuel System Booster	A

*Results

"E" – denotes 75-100% rust

"A" – denotes 0% rust

("B+" or better – generally considered to pass)

All tests and data were performed and gathered using third party testing.

