

MAX-ATOMIZER™ FUEL INJECTOR CLEANER

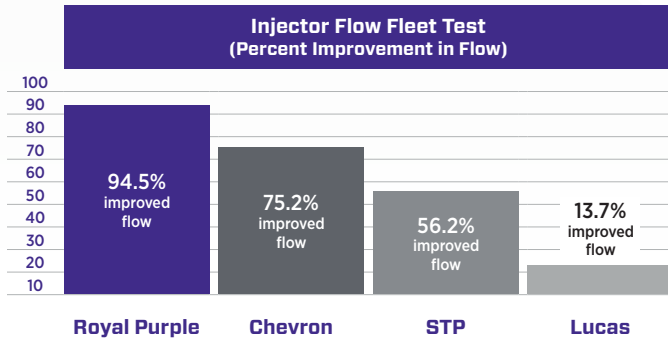
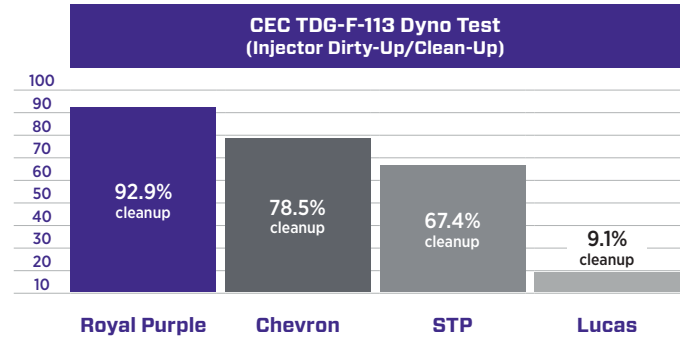
PRODUCTS TESTED*

- 1) Royal Purple Max-Atomizer Fuel Injector Cleaner
- 2) Chevron Techron Fuel Injector Cleaner
- 3) STP Super-Concentrated Fuel Injector Cleaner
- 4) Lucas Fuel Treatment & Injector Cleaner

*Each product tested at manufacturers' recommended dose

Injector deposits form quickly in modern Gasoline Direct Injection (GDI) engines because injectors are located in the combustion chambers. This extreme high-temperature environment cokes (bakes) deposits onto injector nozzles, making them difficult to remove. Even a small amount of deposit on injector tips prevents optimal atomization of fuel, causing performance loss and reduced fuel economy. Max-Atomizer's high flash point allows it to reside in hot combustion chambers longer than other products, resulting in more effective deposit clean-up.

*Testing performed 2020 by ISO 17025 CEC Research Lab.

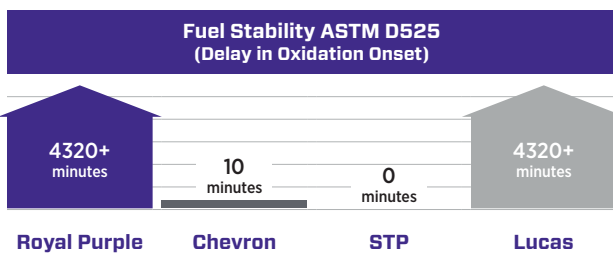
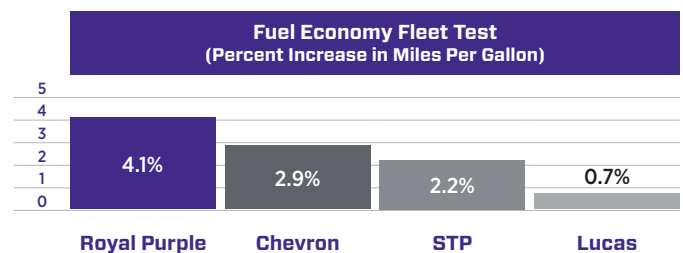


Injector flow rates are reduced when deposits form on the tips of injectors. Fuel Injector Cleaners (FIC's) face a tough task of cleaning/keeping-clean deposit-sensitive injectors. Volatile low-flash point detergents in most additives vaporize before reaching GDI injectors in extremely hot combustion chambers, especially in turbocharged engines. This results in incomplete clean-up, and reduced injector flow. Max-Atomizer improves injector flow rates when tested in BMW GDI turbo engines.

*Testing performed 2020 by ATD GmbH.

Fuel economy is reduced when deposits are formed on injector nozzles. Modern engines have injector nozzles with a higher quantity of smaller holes. This reduces fuel droplet size and better atomizes fuel sprayed into combustion chambers. But smaller nozzle holes also clog easier, especially in GDI engines that are more deposit-prone. Reduced fuel atomization causes loss of power and fuel economy, and increases emissions. Max-Atomizer removes injector deposits and restores optimal injector atomization when tested in BMW GDI turbo engines.

*Testing performed 2020 by ATD GmbH.



*Test terminates at 4320 minutes

Oxidative stability of hydrocarbons in fuel impacts how quickly they chemically break down to form gums that stick to engine surfaces and coke (bake) into deposits. By delaying/preventing the onset of oxidation, less gums are formed, resulting in fewer deposits. This reduces the clean-up burden of fuel detergents. In this way, fuel stabilizers function synergistically with detergents to maintain total engine cleanliness. Max-Atomizer stabilizes fuel (especially before/after idle periods) to prevent deposit forming gums.

*Testing performed 2020 by Southwest Research Institute.

