



WORLDWIDE PARTNER OF
THE AUTOMOTIVE INDUSTRY

Guard Fill -Diesel

Product properties:

The **Guard Fill-Petrol** keeps inlet valves, injection nozzles and combustion chambers free of coke residues, reduces friction in the engine and protects all metal surfaces from corrosion. The **Guard Fill** additive package reduces petrol consumption up to 3 percent and can even reduce engine out emission up to 35%. Humidity and condensed water gets removed and the upper cylinder area is well lubricated and protected. **Guard-Fill** keeps the engine in good condition during its entire life.

Key functions:

- reduces nozzle contamination
- prevents coke residues
- perfect Anti-Foam properties
- perfect corrosion protection
- elevates the octane level
- protects by forming fuel-water emulsion
- improved fuel stability
- compatibel with engine and fuel system materials

Benefits in details:

Detergency

Detergency (nozzle fouling) tests were performed using the Peugeot XUD9 1.9 litre engine according to the CEC F-23-A-01 test standard.

During application of **Guard Fill -Diesel** the test results show detergency performance within the industry standard of < 85% nozzle fouling at 0.1 mm needle lift.

| Application of Guard Fill -Diesel | Fouling @ 0.1 mm needle lift,% |
|--|--------------------------------|
| No | 87.1 |
| Yes (1:1000) | 77.3 |

Antifoam

Test results shows, that the **Guard Fill -Diesel** meets the antifoam performance requirements at the recommended treat rate by using the BNPe procedure. (BNPe = Bureau de Normalisation du Petrole)

Water reaction

The used test method ASTM D1094 shows, that the **Guard Fill -Diesel** will not cause problems of water emulsion. The **Guard Fill -Diesel** has no adverse effect on the water reaction properties of base fuel.

Our information is based on careful examination and may be considered as reliable. However, all information supplied is a non-binding advise.



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Corrosion protection

Using **Guard Fill –Diesel** is a very good option to effectively prevent corrosion in Diesel fuels. It has been demonstrated using the ASTM D665A corrosion test. In this test, a steel probe is immersed in a mixture of fuel and distilled water at 60°C. After 24 hours, the steel probe is rated using the National Association of Corrosion Engineers (NACE) scale.

Without our **Guard Fill –Diesel** the test failed with scale rating “E” and with application of **Guard Fill –Diesel**, the test passed with very good rating “A”.

Cetane number improvement

Guard Fill –Diesel contains a significant proportion of cetane improving agent. The Increasing of cetane number results in the following benefits:

- Reduced ignition delay leading to improved fuel economy and reduced noise.
- Reduced smoke emission
- Improved cold start performance
- Reduction of exhaust emissions; lesser black smoke.

The improvement of cetane number depends on base-fuel composition and the base cetane number. Nevertheless, the use of **Guard Fill –Diesel** may improve the cetane number up to 2 points.

Oxidation stability

Guard Fill –Diesel which contained in diesel fuels, will exhibit enhanced oxidation stability. The measured method is ASTM D2274.

See typical results using **Guard Fill –Diesel** in commercial diesel in the table below:

| Application of Guard Fill -Diesel | Filterable insolubles, mg/100 ml | Total insolubles, mg/100 ml | % Improvement |
|--|----------------------------------|-----------------------------|---------------|
| No | 1.15 | 1.15 | - |
| Yes (1:1000) | 0.8 | 0.8 | 30.4 |

The value of 30.4 % shows a very good improvement of the stability properties of the diesel fuel while using **Guard Fill –Diesel** product.

Fields of application:

For use in all diesel engines, catalyst and turbo-recommended. As additive to the fuel cycle.

Instructions for use:

Add to the diesel fuel system before filling up.

Consumption per vehicle:

75 ml in 80 l tank volume (Dosage ratio: 1:1000)

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