



## MANNOL Diesel Ester De-Icer 9992

An additive for defrosting congealed and clarifying turbid diesel fuels, especially for diesel grades with high paraffin content (summer types). It has anti-wear and detergent properties as well as anti-gel effect.

Properties:

- Dissolves paraffin crystals formed in diesel fuel under the influence of low temperatures, which allows effectively restoring fuel pumpability in the system and starting the engine on congealed or turbid fuel;
- Improves the low-temperature properties of fuel: reduces the turbidity and congelation temperatures, as well as the limit of filterability;
- Forms a stable and durable lubricating complex ester-oil film of high adsorption degree on the units and separate parts of the fuel system, which significantly reduces the friction coefficient of the contacting surfaces and their wear. The effect is particularly noticeable in high-pressure fuel pumps regarding the plunger-liner pair, injectors and pump nozzles – which significantly increases the service life of this expensive equipment. As far as the high-pressure fuel pump is concerned, this eliminates the main cause of plunger pair wear – bad-quality “dry” diesel fuel;
- Forms an additional stable and durable lubricating complex ester-oil film of high adsorption degree in the combustion chamber regarding following pairs: ring – liner and valve head – seat in two strokes out of four from the moment of atomisation of the fuel-air mix – which significantly reduces the friction coefficient and the wear of the liner and compression rings, and also valve seats, especially not hardened ones. It is completely combusted together with the fuel, leaving no deposits;
- Due to the contained detergent additives, it effectively cleans units and separate parts of the fuel system from all types of dirt and deposits, and the combustion chamber from soot deposits, which are formed during fuel combustion, including low-quality fuel. Prevents formation of new deposits on the non-contacting surfaces of ferrous and non-ferrous metals and alloys due to formation of a special protective oil film. It also has a distinctive corrosion protection effect.

Application:

Disconnect and dismantle fine and coarse fuel filters. Remove congealed fuel from them. Add the package contents mixed with diesel fuel in a ratio of 1:1 to the filters. Put the filters back in their place. Then add the additive to the fuel tank in a ratio of 1 part to 200 parts of fuel. Wait 15 to 20 minutes until the congealed diesel fuel has dissolved, and then start the engine. The 0.5 L container is calculated for 100 L of fuel. In the future, we recommend using MANNOL Winter Diesel (antigel) every time you refuel to prevent the fuel from congealing. Depending on the fuel type and temperature, the effectiveness of the additive may vary. We recommend purchasing at least 0.5 liters of the product at the same time.

# PACKAGING

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