Diesel Anti-Freeze

Bardahl Diesel Anti-Freeze is a multifunctional diesel fuel additive designed to modify wax crystals to enable the fuel, to reach the desired cold filter plugging point specifications. It contains special ash less polymers dissolved in petroleum derived solvent. The additive will treat heating oil automotive diesel and industrial gas oil. It also prevent fuel system corrosion, reduce injector deposit built up, picks up small amounts of water in diesel fuel tanks, help reduce exhaust-smoke and aid in maximizing fuel economy.

The problem
Wax is a high energy, high cetane component in diesel fuel, which can crystallize out at low temperatures causing, filters to clog restricting or preventing fuel low.
Small amounts of water in fuel can crystallize (form ice) at temperatures below 0°C (32°F) blocking fuel lines and filters. This same water acts to corrode pumps, injectors and other fuel system parts.
Deposit formation can clog injectors, pumps and filters increasing exhaust smoke and fuel consumption. Current generation diesel fuels often inadequately lubricate fuel system pumps.

The action
Bardahl Diesel Antifreeze contains a wax crystal modifier, which has proven its performance in diesel fuels worldwide. Tests has shown that Diesel Anti-Freeze will significantly modify flow characteristics of diesel fuel at low temperatures.

Bardahl Diesel Fuel Anti-Freeze was tested under field conditions to see if it could prevent filter and fuel line blockage when added to diesel fuels. Failure in these tests was defined as clogging of fuel lines or filters with wax crystals so as to prevent normal engine operation.

Bardahl Diesel Anti-Freeze lowers the flow point of diesel fuels, allowing engine operation a fuel storage when temperatures remain below freezing for extended periods. Use of Diesel Anti-freeze will help prevent fuel from solidifying in fuel lines, tanks, and filters. This action helps eliminate costly thawing producers and engine damage due to fuel starvation.

Bardahl Diesel Anti-Freeze contains a detergent system, which will emulsify small amounts of water helping to prevent fuel line and filter blockage with ice crystals. Diesel Anti-Freeze contains no alcohols, which can damage diesel fuel system injector pumps and seals, as well as reduce diesel fuel cetane. The detergent system in DAF coats rust-sensitive metal parts helping prevent corrosion. The results of ASTM D-665 rust tests in fuels with and without Diesel Anti-Freeze, demonstrate its ability to help prevent corrosion.

BARDAHL NL – OCD INTERNATIONAL
Maxwellstraat 41 - 2216GP Dordrecht - Postbus 9024 - 3301 AA Dordrecht
Tel (078) 6512322 - Fax (078) 6174848 - email: info@bardahl.nl - website: www.bardahl.nl

Product information

The detergent system in **Bardahl Diesel Anti-Freeze** acts to clean and maintain the cleanliness of injectors and other critical fuel system parts. In field tests, trucks using fuel with DAF detergents maintained injector cleanliness at high levels and reduced smoke as compared to similar trucks run with the same fuel but without DAF. Field-tests and customer reports indicate fuel savings from 1.5% to 6.0% with use of Diesel Anti-Freeze as well as substantially reduced smoke.

Bardahl Diesel Anti-Freeze contains an ash less hydrocarbon compound, which helps lubricate sensitive diesel fuel pumps.

Directions for use
Bardahl Diesel Anti-Freeze comes in a concentrated version and is a very easy handled low viscosity low pour point additive particularly suitable for secondary treatment of fuels. Designed to treat most fuels at a ratio of 1 litre. Anti Freeze per 1000 litre fuel or a ratio of 1 litre per 500 litre of fuel. The most efficient treatment ratio for a particular fuel may vary, depending upon crude source and wax content.

For best result mix **Bardahl Diesel Anti-freeze** thoroughly with diesel fuel. Where high sulphur fuel mare in use, a combination of DAF and Oil Booster will allow maximum engine performance while preventing significant bearing corrosion.

For bulk stored fuel some means of agitation is necessary to ensure thorough mixing of the additive in the fuel.

When adding to a vehicle fuel tank it is recommended that the additive is to be pored into a partially filled tank (i.e. approximately quarter full). The fuel tank should then be filled with fuel. Let the engine run for a few minutes to flush fuel lines and filter assembly.

Attention
The additive must be added when the fuel is at least 5°C above its cloud point.

Questions:
With respect to questions about the freezing benefits of **Bardahl Diesel Anti-Freeze** (DAF) we can tell that it is very complicated to give a simple figure for each dosing. However we will try to give an answer and an explanation on the working of this product.

1. **Bardahl Diesel Anti-freeze** can be used for automotive diesel fuels, heating oils and industrial gas oils.
2. The working of the product will vary from fuel-brand to fuel-brand and from country to country. The working of a Diesel Anti-Freeze is influenced by many different factors. For example the percentage of n-paraffin in the crude oil: the higher the percentage the more difficult the treatment. A heavier n-paraffin is also more difficult to treat. Also the final boiling point of a fuel has influence on the working of the **Bardahl Anti-Freeze** and also the percentage of jet fuel in

BARDAHL NL – OCD INTERNATIONAL
Maxwellstraat 41 - 2216GP Dordrecht - Postbus 9024 - 3301 AA Dordrecht
Tel (078) 6512322 - Fax (078) 6174848 - email: info@bardahl.nl - website: www.bardahl.nl

the fuel has influence on the working of the additive. You can see that we therefore can only give you approx. temperatures or reductions.

If we want to give more precise information we need more technical details of the most important fuels available in the country or samples of the fuel.

For information; there are 3 measuring-points for diesel fuels:

Pour Point:	is the temperature when the fuel still flows
Cloud Point:	is the temperature when the n-paraffin starts to separate from the fuel
Cold Filter Plugging Point:	is the temperature when the wax crystal starts to get too big to pass the fuel filter.

Bardahl Diesel Anti-Freeze is designed to modify the wax crystals and to absorb moisture in the fuel. The product is specifically designed for secondary treatment of finished fuels.
In spite of the above-mentioned influences we give hereby a safe figure for the protection of untreated or low treated fuel. This information is also mentioned on the 1-litre package (or bigger).

At a treatment of 0,1% you will lower the CFPP with approx.10°C and Pourpoint 13°C
At a treatment of 0,2% you will lower the CFPP with approx.15°C and Pourpoint 18°C
At a treatment of 0,3% you will lower the CFPP with approx.17°C and Pourpoint 20°C

A higher treatment will add only a few degrees or not at all, because the response curve flattens out at high treat rates and the response to further addition of additive will depend on the characteristics of the curve for the particular fuel.
The information on the can is based on average European fuels and can therefore vary with approx. + or - 3°C.

On the cans we also indicate the treatment of treated fuel.

Article number	2501
Contents	100 ml
Article number	2555
Contents	5 litre
Article number	2582
Contents	25 litre
Article number	2586
Contents	60 litre
Article number	2592
Contents	208 litre