



MDEChem DCP500 HFO MDO Additive

Description

MDEChem DFC or DCP500 is an application-engineered, fuel borne technology that utilizes proprietary technology to produce EPA verified results in the areas of less damaging emissions and less diesel fuel or heavy fuel oil consumption.

When MDEChem DFC is introduced into fuel, it improves the combustion process and reduces friction, increasing fuel economy while reducing emissions and engine wear. Unlike additives such as cetane enhancers, alcohols, or metal-based catalysts that seek to alter the fuel, MDEChem DFC fuel-borne technology uses the fuel as a carrier into the combustion chamber.

This patented technology utilizes two processes to positively impact the engine; a catalytic reaction and a surface conversion. The catalytic reaction optimizes the heat release rate, which leads to increased power, reduced emissions, and increased fuel efficiency. The surface conversion forms an inorganic polymer complex that converts the surfaces of ferrous and non-ferrous metals. This complex smoothens and passivates the metal surface, improves reflectivity (emissivity), and reduces oxygen reactivity, resulting in a reduction of friction and a more complete combustion reaction.

To ensure the highest degree of product quality, MDEChem manufactures its patented products at company owned ISO 9001-certified facilities. U.S. Patents: 5084263, 5310419, 5540788; Patents Pending.

MDEChem DFC can be deployed in a variety of diesel and HFO-fuels, MGO, bio-diesel and GTL fuels. DFC is currently provided to the dredging, marine and off-shore industries across the globe at various engine platforms:

- Alco
- Caterpillar
- Cummins
- Detroit Diesel / MTU
- Deutz
- EMD
- Fairbanks Morse
- GE
- John Deere
- Mitsubishi
- Ruston
- Wartsila

As MDChem DFC is an additive, HFO-fuelled users can order MDE's DFC custom injection system, available for precise blending. The system is specifically designed to guarantee flawless introduction and mixture of HFO and DFC at the pressures and temperatures that HFO engines require, without, as usually seen at HFO-level, destroying the additive's functionalities.



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Change in	Line-haul duty cycles	Switching duty cycles	Total diesel used during verification
Fuel consumption	-5%	-10%	132200 litres
CO emission	-44%	-39%	132200 litres
CO ₂ emission	-5%	-10%	132200 litres
NO _x emission	no statistics	-9%	132200 litres
THC (soot) emission	-22%	-27%	132200 litres

Results verification test EPA (Environmental Protection Agency, writes US regulations) observing fuel efficiency and emission rates

MDEChem DFC causes fuel to burn more completely. Because of this, the combustion temperatures rise with an average 4.6%. Already present deposits in the combustion area of the engine are removed this way.

Increased amounts of burned fuel means that more energy comes free, thus resulting in much lower fuel-consumption. Average drops in fuel consumption range from 5% to 12%, based on type, age and condition of the engine.

An increased lubricity in fuel injection system and engine makes that cold starts are improved, injectors are functioning much better for a much longer time with less wear and that the engine itself runs with less noise and smoke. All season performance of fuels using MDEChem DFC increases as DFC prevents gelling of fuels down to -40 °C.

MDEChem DFC does not contain harmful zinc, chlorine, alcohol, ash or heavy metals.



Piston from engine not treated with DCP500



Treated with DCP500



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Benefits

TECHNICAL

- ✓ Optimizes fuel burn-rate
- ✓ Lubricates and conditions fuel-injection systems
- ✓ 5% higher combustion temperatures cleans slow steaming engines
- ✓ OEM and EN590 compliant
- ✓ ETV Green House Gas tested
- ✓ US EPA verified

OPERATIONAL

- ✓ Reduces visible smoke
- ✓ Prevents gelling of diesel down to -40 °C
- ✓ Has unique HFO injection system for HFO available
- ✓ Transport by air possible
- ✓ Free of zinc, chlorine, alcohol, ash and heavy metals
- ✓ Lowers engine oil oxidation

FINANCIAL

- ✓ 5% tot 12% less fuel consumption
- ✓ Reduces emissions of CO, NOx, SOx, SO2 ranging up to 74%
- ✓ Factor 3 less downtime for injectors
- ✓ Less oil consumption
- ✓ Letter of No Objection from Wärtsilä

Directions of use

- ✓ For Heavy Fuel Oil, Marine Diesel Oil diesel engines only.
- ✓ Using DCP500/DFC for the first time: Mixing ratio 1:640 for the first 500 running hours.
- ✓ Mixing ratio 1:1280 after 500 running hours.
- ✓ Remove seal, dispense required amount into the fuel tank or fuel storage prior to adding fuel or add direct to (day) tank prior to filling.
- ✓ Use in a well-ventilated area only.
- ✓ Provide adequate ventilation, including local extraction, to minimise exposure to vapours.
- ✓ Avoid breathing vapours.
- ✓ Avoid contact with skin, eyes or clothing.
- ✓ Do not eat, drink or smoke when handling this product.



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Directions of use

- ✓ Wash hands thoroughly after handling.
- ✓ Take off immediately all contaminated clothing and wash it before reuse. Contaminated clothing should be thoroughly cleaned or disposed of as hazardous waste.
- ✓ MDEChem DCP500/DFC keeps fuels within valid OEM and/or EN590/EN228 norm.
- ✓ Engine governors are not influenced by use of MDEChem DCP500/DFC.

Logistic info

- ✓ Viscosity @ 40° C, 20 – 28 cSt, Viscosity @ 100° C, 4.4 – 5.7 cSt.
- ✓ Flash point > 100° C (212° F), pour point of -30 to -40° C (-22 to -40° F).
- ✓ MDEChem DCP500/DFC has a shelf life of 1 year.
- ✓ Store MDEChem DCP500/DFC between temperatures of 0° Celsius and 30° Celsius.
- ✓ MDEChem DCP500/DFC is available in 20 liter, 208 liter and IBC packaging.
- ✓ MDEChem DCP500/DFC is allowed for transport by air.