HYDRA
DPB-100

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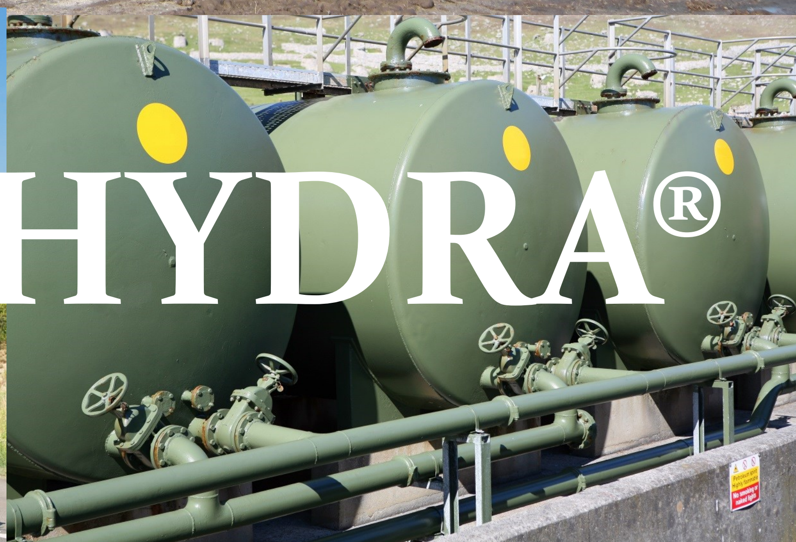
DUAL ACTION - Converts Nato F34 (JP-8) or F35 (Jet A1) to Nato F63 Suitable for all Diesel Engines. + Latest Nano Detergents to Clean Injectors, Fuel Lines, valves etc

NATO Part No: NSN 6850-99-364-1916



Features & Advantages

- Improves fuel economy by up to 10%.
- Cleans & protects fuel injectors.
- Boosts fuel cetane by up to 6 numbers.
- Maximum fuel burn efficiency - more power.
- Reduces diesel engine exhaust emissions. smoke, odour and exhaust soot.
- Cleans all engine internal components where fuel or exhaust gases pass through.
- Cleans & protects against formation of gums.
- Prevents water corrosion, damage to injectors and metal components in fuel system.
- Converts NATO F34 and F35 Fuel to NATO F63 suitable for all diesel engines.
- Reduces CO_2, NOx, THC, NMHC, CO, PM.
- Dose rate 1 litre treats 1 m^3 fuel
- Gives as new engine performance.

The Problems

A fuel's quality also is very dependent on its cetane number.

The cetane number (CN) is an index of the ignition point or combustion quality of fuel and is measured using an ASTM D613 test.

Standard NATO aviation kerosene JET A-1 and JP-8 normally has a minimum cetane number of around 43. Whilst depending on engine design, driving conditions, and so on. The optimum cetane value requirement for most diesel engine vehicles is around the mid to high 50s.

Also in modern diesel engines the injector orifice size are much smaller and manufactured to tighter tolerances than in the past.

This means that even a small deposit build-up inside the injector can interfere with the correct spray pattern resulting in fuel wastage and higher emissions due to unburnt fuel leaving the engine. These deposits can start as early as 2,000 miles in a new engine.

Also fuels with Cetane numbers lower than minimum engine requirements can cause rough engine operation. They are more difficult to start, especially in cold weather.

Many low Cetane fuels also increase engine deposits resulting in more smoke, increased exhaust emissions and greater engine wear.

Diesel engines can produce black soot or more specifically particulate matter from their exhaust. The black smoke consists of carbon compounds that have not burned because of local low temperatures when the fuel is not fully atomised.

These local low temperatures occur at the cylinder walls, and at the surface of large droplets of fuel. At these areas where it is relatively cold, the mixture is rich (contrary to the overall mixture which is lean).

The rich mixture has less air to burn and some of the fuel turns into a carbon deposit.

When using jet fuels based on kerosene additional lubrication is required to protect the engine.

Also, fuels which meet engine operating requirements will improve cold starting, reduce smoke during start-up, improve fuel economy, reduce exhaust emissions, improve engine durability, reduce noise and vibration.

The largest environmental aspect and impact that all engines have is the fuel that they use.

Consumption of this fuel leads to harmful emissions such as CO_2, NOx. Emissions of nitrogen oxides (NOx), total hydrocarbon (THC), non-methane hydrocarbons (NMHC), carbon monoxide (CO) and particulate matter (PM) are regulated for most vehicle types. Modern engines are much better but still not perfect.

Description

POWERFUL DETERGENTS

The powerful detergents in **Hydra DPB-100** prevents the formation of and also removes existing deposits caused by fuel decomposition and unburnt fuel.

These deposits interfere with the performance of your diesel engine.

OPTIMAL INJECTOR SPRAY PATTERN

Modern high pressure direct injection engines use precise fuel metering through narrow shaped spray channels.

Injector deposits mean uneven fuel flow. 100% clean injectors give optimal fuel spray pattern, resulting in a very finely atomised spray.

This means that each finely dispersed particle of fuel is surrounded by many molecules of air (20% oxygen) ensuring a more complete burn.

This in turn gives you much better fuel economy, as all of the fuel is burnt, reducing emissions and improving engine durability.

By reducing soot formation **Hydra DPB-100** also helps keep the diesel exhaust gas return valves clean.

INCREASED LUBRICITY

Hydra DPB-100 also contains lubricity improvers that decrease fuel pump wear issues. These lubricants work in very cold climates and do not raise the sulphur level of treated fuel.

Our lubricants also reduce the friction in the cylinder thereby improving the coefficient of friction helping fuel economy. **Hydra DPB-100** protects your valuable fuel systems, prevents engine malfunction and engine

failures. Test results give HFRR Wear Profile of less than 430 when used with kerosene based fuels.

LOW TEMPERATURES
Hydra DPB-100 does not decrease the freezing point of treated fuels.

All our products are manufactured to the highest International Specifications at our UK plant.

This plant is accredited to ISO 9001:2015,
ISO 14001:2015 and ISO 45001:2018 ensuring that NATO F63 fuel quality standard is always adhered to.

Breakeven point on fuel savings against cost of product is less than 1%. This means when your fuel consumption is reduced by more than 1% the product is not an additional cost, but is giving you massive cost savings.

Use with JET Fuel Additive dosing systems or can be added directly to fuel tank then top up with new fuel. Fuel tanks being treated should be at least 10% full.

Dilution Rate: 1:1,000 (1 litre m^3) can be used at up to 1:500 (2 litre m^3).

HYDRA DPB-100's Triple Action

- Raises cetane levels.
- Provides extra lubrication to protect engines and reduce friction.
- Contains nano cleaning detergents to ensure that engines run as new at all times and during the utmost stress.

Laboratory Facilities

Hydra International Ltd.'s Research & Development Laboratories are a hub of activity where new products are developed and formulated. We have working relationships with our raw material suppliers, many of these suppliers are major world-wide chemical manufacturers with their own development laboratories.

As a company we are well known in the chemical industry for being receptive to cutting edge new chemicals which can be incorporated into our products to achieve performance advantages. An important part of the International Standards that we hold is that of constant improvement. We show that we have achieved this at every independent audit.

Lubricity

The lubricity of jet fuels treated with the additive **Hydra DPB-100** is better than standard diesel fuel, and without it is poorer than the lubricating properties of diesel fuel. Untreated Jet Fuels do not satisfy the required maximum norm of HFRR 460 µm.

Fuel Property Parameters

Fuel Property parameters	Diesel fuel test method	Aviation fuel test method	Diesel fuel (Grade C)	Aviation fuel JET A-1 (F-35)		Aviation fuel JP-8 (F-34)	
				without additive	with Hydra DPB-100	without additive	with Hydra DPB-100
Hydrocarbon mixtures			C10 – C29	C8 – C18		C8 – C18	
Fraction, °C			180–350	140–230		140–230	
Density at 15 °C, kg/m3	LST EN ISO 12185	ASTM D 4052	843.6	797.2	797.2	791.2	791.2
Net heating value, MJ/kg	LST ISO 8217	ASTM D 4529	43.10	43.30	43.27	43.23	43.23
Cetane number	LST EN ISO 5165		51.3	42.3	48.1	40.6	44.7
Lubricity, corrected wear scar diameter (wsd 1,4) at 60 °C, µm	LST EN ISO 12156		277 (max 460)	611	422	822	420
Cold filter plugging point (CFPP), °C Freezing point, °C	LST EN 116	ASTM D 2386	−7	−58	−58	−60.1	−60.2
Sulphur, mg/kg	LST EN ISO 20846	ASTM D 5453	8.9	11	11	11	11

References

ASTM D 1655-15	Standard Specification for Aviation Turbine Fuels. American Society for Testing and Materials.
ASTM D 2386-06: 2012	Standard Test Method for Freezing Point of Aviation Fuels. American Society for Testing and Materials.
ASTM D 4052-11	Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter. American Society for Testing and Materials.
ASTM D 4529-01	Standard Test Method for Estimation of Net Heat of Combustion of Aviation Fuels. American Society for Testing and Materials.
ASTM D 5453-12	Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel and Engine Oil by Ultraviolet Fluorescence. American Society for Testing and Materials.
LST EN 116: 1999	Diesel and domestic heating fuels – Determination of cold filter plugging point.
LST EN ISO 5165: 1999	Naftos produktai. Dyzelinio kuro užsidegimo kokybės nustatymas. Variklinis cetano metodas [EN ISO 5165: 1998, Petroleum products – Determination of the ignition quality of diesel fuels – Cetane engine method (ISO 5165: 1998)].
LST ISO 8217: 2012	Naftos produktai. Kuras (F klasė). Jūrų laivų techniniai reikalavimai (tapatus ISO 8217:2012) [Petroleum products – Fuels (class F) – Specifications of marine fuels (ISO 8217: 2012 identical)]. McDonnell, K. P.; Ward, S. M.; McN
LST EN ISO 12156-1: 2007	Dyzelinas. Tepumo įvertinimas naudojant didelio dažnio slankiojamojo judesio stendą (MFRR) [EN ISO 12156-1: 2006, Diesel fuel – Assessment of lubricity using the high-frequency reciprocating rig (HFRR) – Part 1: Test method (ISO 12156-1: 2006)].
LST EN ISO 12185: 1999	Žalia nafta ir naftos produktai. Tankio nustatymas. Vibracinis U vamzdelio metodas [Crude petroleum and petroleum products – Determination of density – Oscillating U-tube method (ISO 12185: 1996 + ISO 12185: 1996/Cor.1: 2001)].
LST EN ISO 20846: 2004	Naftos produktai. Sieros kiekio automobiliniuose degaluose nustatymas. Ultravioletinės fluorescencijos metodas [EN ISO 20846: 2004, Petroleum products – Determination of sulphur content of automotive fuels – Ultraviolet fluorescence method (ISO 20846: 2004)].

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