



AUTOMOTIVE DIESEL FUEL - Questions and Answers

Q. What is Diesel Fuel?

A. *Diesel fuel is principally a blend of petroleum derived compounds called hydrocarbon distillates (heavier than petrol) and may contain additional additives. Diesel fuel is injected into the compressed air in the combustion chamber of a diesel engine where it ignites spontaneously.*

Q. What is Alpine Diesel?

A. *The low temperature operation of diesel engines can be improved by adding 10 to 30 percent of Heating Oil to the diesel fuel. This mixture is referred to as Alpine Diesel. For extremely low temperatures up to 50 percent of heating oil may be required.*

CAUTION: PETROL SHOULD NEVER BE USED TO DILUTE DIESEL FUEL BECAUSE OF ITS INCREASED FLAMMABILITY AND RISK OF EXPLOSION.

Q. What are the principal quality features of diesel fuel about which I should be concerned?

A. *Diesel fuel should be clean and free of water. It should flow properly during cold weather and should not foul injectors or any other fuel system components. It should have an adequate cetane number to provide good starting characteristics and combustion.*

Q. What is meant by diesel fuel cetane?

The cetane number is a measure of the ignition quality of the fuel that influences starting as well as combustion roughness. A cetane value higher than required does not materially improve engine efficiency.

Most engine builders recommend diesel fuels of at least 40 cetane. All diesel fuels sold in Australia by BP exceed the Australian Standard 3570 requirement of 45 minimum.

Q. What is meant by cleanliness?

A. *Diesel fuel cleanliness refers to the absence of water and particulate contamination. This characteristic is significant because of the close tolerances within injector nozzles*

and injector pumps. All vehicle makers equip their fuel systems with filters to protect the injector system. These filters should be inspected and replaced regularly. Some manufacturers also provide filters with drain valves and recommend periodic draining of any accumulated water.

Q. How does water get into diesel fuel and what problems can it cause?

- A. *Water gets into diesel fuel storage and vehicles in several ways -
by condensation,
during transportation,
by leakage through faulty fill pipes or vents,
and by careless handling.*

Water can cause injector nozzle and pump corrosion, growth of bacteria and fungi and plugging of fuel filters with corrosion and biological material. Both vehicle and storage tanks should be checked regularly for water and drained or pumped dry as necessary. In extreme cases biocides may be required to control bacterial growth.

Q. What is the major fuel related cause of poor diesel performance?

- A. *Contamination of fuel by water and dirt entering the fuel as a result of poor handling is the major fuel related cause of poor diesel engine performance. Extreme care must be exercised to ensure that fuel tank caps, dispensing nozzles and hoses should be kept clean to minimise the likelihood of contamination. Removal of water from storage tanks, vehicle fuel tanks, and filter bowls on a regular basis is important. Dry storage systems will prevent fuel*

Q. Why do diesel engines smoke?

- A. *Diesel engine smoke is caused by incomplete combustion. White smoke is caused by tiny droplets of unburned fuel as a result of low engine temperature. This smoke should disappear as the engine warms up. Black smoke is caused by a faulty injector, insufficient air, and overloading and/or overfuelling the engine. Blue-gray smoke is the result of burning lubricating oil and is an indication of poor mechanical condition.*

Q. What is meant by heat content?

- A. *The heat energy content of a diesel fuel is the amount of energy released on combustion of a litre of diesel fuel. It is measured in megajoules and is related to the nature of the hydrocarbon mixture in the fuel. The energy content per litre of diesel fuel is higher than that of petrol.*

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