

Biofuels: Essential Information

- **What is a Biofuel?**

Biofuels are components of motor fuels (petrol and diesel) that are made from renewable sources such as vegetation, fish or animals.

- **Why are biofuels being introduced?**

The EU Biofuels directive set targets of bio energy content of 5.75% in motor fuels by 2010; the Draft EU Renewable Energy Directive calls for 10% by 2020. Most member states have introduced legislation to enact the 5.75% directive. In order to comply with such legislation Esso is introducing biofuels to its service station network.

- **Are there different types of Biofuels?**

Yes: dependant upon the type of fuel (diesel or petrol), different components are blended.

- Bio Petrol contains bio ethanol, which, typically, is produced via a fermentation process using cereals, sugar beet or sugar cane. It can be incorporated into petrol up to either 5% or 10% volume and is typically known as E5 or E10.
- Bio Diesel, in which the biofuels component is “bio-ester” oil; usually FAME (Fatty Acid Methyl Ester). Other oils can be used: mainly Soya bean and palm oil. Biodiesel is typically referred to as B5 or B7 representing 5% or 7% bio content by volume.

- **Do Biofuels require special handling?**

Yes: the key issue is that of the impact of water. Through simple precautions and good housekeeping, problems can be reduced or prevented

- **To what extent does ethanol blended petrol require special handling?**

If sufficient water gets into a storage tank containing ethanol blended petrol, phase separation will occur. The contents would separate into a top layer with an off specification petrol/ethanol mixture and a layer of ethanol/water at the bottom of the tank. Customers would potentially receive this latter phase earlier than pure water since there is more volume caused by the separation of the ethanol from the main body of the fuel

It is essential to monitor the water levels more closely and to ensure that water contamination of fuel does not occur. The site must immediately stop sales upon any water being detected

We would recommend that the following preparations are made prior to receipt of the first delivery:

- Remove all water and sediment from the tanks;
- Ensure that the pumps are fitted with ideally 10 micron filters (25 maximum); and
- Automatic tank gauges (if present) should be set to the lowest possible detection level for water.

- **To what extent does bio-diesel require special handling?**

Diesel containing biocomponents is known to have an increased risk of microbiological growth (MBG). These grow at the interface between fuel and water and can grow rapidly, especially during warmer periods.

B5 and B7 has now been introduced into a number of countries in Europe and is believed to be more prone to microbiological growth than B0

MBG can be prevented by ensuring that any water present is removed periodically. Normal water housekeeping procedures should be rigorously applied on site:

- ATGs should therefore be closely monitored or tanks dipped on a regular basis.
- Water warning levels on ATG's for diesel should be set at 20mm and the alarm condition at 50mm.
- The Driver to also dip for water if dipping for ullage.

If MBG does occur then filters installed on the pumps are the best means to prevent customer impact

We would recommend installing the smallest filter possible:

- During regular maintenance replace existing filters on diesel pumps with a 20/25 micron filter.
- If the pump does not have a filter pot that would allow the use of 20 micron filter, then install a 120 micron strainer on the pump inlet.