



## **UNLEADED E10 IN SMALL ENGINES**

### **Introduction**

Ethanol blend fuels are not new by global standards, and the issues relating to smaller engines mostly revolve around storage and handling of the fuel rather than the ability to run an engine.

Different engines do have different fuel requirements and as such some older engines are not suitable for fuels containing ethanol.

If the manufacturer specifies that fuels with an ethanol content of 10% with a minimum Research Octane Number (RON) of 91 can be used in your equipment then BP Unleaded 91 with up to 10% Ethanol is suitable to use. So before using any grade of fuel in your equipment check first that you have selected the appropriate grade. Equipment handbooks will offer practical advice on the grade to use. For two stroke and 4 stroke engines where the manufacturer's data is not available or where the equipment is using fuel tanks that are made from aluminium, or fibreglass, BP recommends that Premium Unleaded should be used because older types of fibreglass tanks may not have been made with Ethanol resistant resin.

### **Why treat E10 blends with caution in small engines?**

BP Unleaded 91 with 10% Ethanol contains 3.5 % oxygen by weight which means your equipment may run a leaner fuel mixture resulting in higher combustion chamber temperatures. Using a premium grade fuel (Not containing Ethanol) or having your equipment retuned by the manufacture to use 10% Ethanol Fuel will fix this problem, as small engines such as chain saws, lawn mowers and whipper snipper's aren't able to compensate for the increase in oxygen in the fuel mixture.

### **If your equipment can use BP Unleaded 91 with 10% Ethanol then:**

- Always ensure the fuel you use meets the engine manufacturer's minimum Octane requirements.
- Observe safe fuel handling practices.
- As with all fuels always start off with fresh fuel or mixes.

- Run the fuel tank to empty after use where practical, this will avoid the fuel turning stail.
- As always Store your fuel in approved containers, for example those marked as meeting AS 2906.
- As with all Fuels store your fuel in a safe, temperature stable location.

### **Dont**

- Use ethanol blend fuels in small equipment without checking with the owner's manual or manufacturer.
- Store ethanol blend fuels in equipment running tanks especially where it can be subjected to moisture.

The table below will be useful for mixing volumes and determining oil quantities for other fuel oil ratios. It shows the amount of oil in ml required for 1L, 5L and 20L of fuel.

<b>Fuel to Oil Ratio</b>	<b>1L of mix</b>	<b>5L of mix</b>	<b>20L of mix</b>
<b>20 to 1</b>	50ml	250ml	1000ml
<b>25 to 1</b>	40ml	200ml	800ml
<b>30 to 1</b>	33ml	167ml	667ml
<b>35 to 1</b>	29ml	142ml	570ml
<b>40 to 1</b>	25ml	125ml	500ml
<b>45 to 1</b>	22ml	110ml	444ml
<b>50 to 1</b>	20ml	100ml	400ml

### **ETHANOL AND MOTOR SPORT**

If intending to use Ethanol containing fuel in Motorsport check with your Motorsport authority that it is accepted as a legal fuel.

**For further information, please call the  
BP Lubricants and Fuels Technical Helpline  
1300 139 700  
freecall**