Fuel News

Winter Diesel Problems

During unseasonably cold weather some diesel-powered engines will experience difficulties with starting. These problems arise from the formation of wax crystals, which block fuel filters and lines. This fuel news aims to inform BP diesel customers who live in cooler regions of the potential problems that can arise from using diesel during winter, and how to prevent these problems.

WHAT ARE WINTER DIESEL PROBLEMS?

All diesel fuel contains wax. It is considered an important diesel component because of its high cetane value. Normally the wax is a liquid in the fuel, however, when diesel fuel gets cold enough the wax starts to crystallize (i.e. solidify). If the temperature is sufficiently low, enough crystals will form to block the fuel filter and the engine can stop through fuel starvation.

HOW TO IDENTIFY WAXING PROBLEMS

- If wax has formed in a diesel fuel then it will block fuel lines and filters, it is visible as a white / yellow deposit or cloud in the fuel.
- Engines will be hard to start or will not start due to fuel starvation.

WHAT IS BP DOING TO MINIMISE WINTER DIESEL PROBLEMS?

BP supplies Diesel fuel that is appropriate for the season. This is done by varying the cloud point of diesel fuel depending on month and location. These are defined in the Australian Standard AS 3570-1998 for Automotive Diesel Fuel. Therefore every time you purchase diesel fuel from BP –you are guaranteed that the product will be appropriate for the month and location as defined by the Australian Standard.

WHAT CAN YOU DO ABOUT WINTER DIESEL PROBLEMS?

FUEL

The specification for Diesel varies each month; this is done to ensure that the fuel available is appropriate for the season. Because the Summer Diesel has a higher cloud point, it is not appropriate to use this during winter when lower cloud point diesel is required. To avoid winter waxing problems plan to change over all fuel by May at the latest. It is important that summer fuel should not be kept for winter use.

ALPINE DIESEL: Specific regions of Victoria and NSW are supplied with Alpine Diesel with a significantly lower tendency to waxing, for improved but not complete protection from alpine conditions. Similar procedures for insulation and shelter still apply. When travelling into an alpine region in winter, tanks should be filled with at least 75% Alpine Diesel upon arrival.

CORRECT LUBRICATING OIL: Always ensure that the lubricating oil is adequate for cold weather operation. The wrong grade of oil will result in less engine protection and starting difficulties. If an engine oil suffers from dilution by the fuel, sufficient wax may build up in the lubricating oil causing it to solidify in cold weather. Always check the oil is liquid on the dipstick before starting and if in doubt, change the oil before travelling into alpine regions.

VEHICLES & EQUIPMENT

Engines and fuel systems left exposed at night will cool quickly. Storage under cover in a shed or covering with a tarpaulin will reduce heat loss and waxing problems. Changing the fuel filter can often assist, as an old partially blocked filter will be less tolerant to small amounts of wax crystals.

STORAGE TANKS

Insulating the tanks, filters and lines on the vehicles or equipment are a cost effective method of reducing waxing and costly downtime. Remember to insulate the following:

- Above ground storage and handling equipment can also suffer from excessive cooling.
- Exposed tanks, pipes and pumps can act as radiators that quickly cool the fuel.
- Wax can also accumulate at the bottom of tanks blocking offtake lines.

Also remember to remove water from storage tanks by frequent draining, water in suspension in the fuel will form ice crystals when the temperature is below 0°C.

EMERGENCY PROCEDURE FOR COLD START

Should wax crystals cause a problem then the following emergency start up procedure has been taken from AS 3570.

1) Check dipstick to ensure engine oil is fluid. If the engine oil is fluid go to step 2. If it is not fluid do not attempt to start the engine because waxy fuel in the crankcase has frozen. Wait until the oil becomes fluid. Using an external heat source such as a blow heater, steam line or exhaust gases from another vehicle will speed up the process. Once the oil is liquid then replace it with fresh oil in accordance with manufacturers instructions.
2) Attempt to start the engine. If the engine fails to start then check the fuel filter for wax. If the fuel won't flow or is hazy then the filter body and fuel lines will need to be heated using a blow heater or steam cleaner.
3) Once the engine starts run it at low speed until it is warm. This will prevent further blockages.

BLENDING DIESEL

If you are not in an alpine area but have abnormally cold weather, a diesel blend may provide some relief to lower the cloud point. Heating oil (duty paid at diesel rate) is an effective blending agent and your BP supplier can provide information on how to perform this safely, but typically would involve the following:

- Heating Oil at 25 litres for each 100 Litres of diesel, or
- kerosine at 5 litres for each 100 litres of Diesel.

Please note that these ratios would cover most regions in Australia. To ensure optimal blending, consult AS 3570-1998 for accurate heating oil / kerosine ratios. Additives that are claimed to improve cold flow properties are available from a number of Commercial Suppliers. Contact BP for more information about these.

NEVER rev the engine violently after starting. This could damage the injection pump and bearings.
NEVER light a fire under the vehicle fuel tank.
NEVER add petrol to diesel fuel. Petrol has a low flash point, viscosity and cetane and the

For further information, please call the BP Lubricants and Fuel Technical Helpline 1300 139 700 local call or visit www.bp.com.au/fuelnews