DIESEL GELLING

Robb Shingles, WB Power Services Ltd
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DIESEL GELLING PREVENTION IN WINTER

Diesel gelling in cold weather can clog up engines, cause stop-starting issues and even prevent engines starting completely. Preventative management of your fuel is vital to keeping your generator and power flowing.

Today's modern blend fuels only heighten these issues. This is caused by sensitivity of newer engines, and the high efficiency filters needed to protect them.

Diesel is at particular risk from the cold weather, so it's important to take preventative measures to avoid downtime, expensive replacement parts and emergency repairs.

Following our guide will offer additional protection against diesel fuel gelling problems this winter.

Gelling

Diesel can gel in cold temperatures due to the fact it contains paraffin wax. Whilst being an extremely important component, improving diesel viscosity and lubrication, the fact that it thickens in cold temperatures is a serious limitation which must be considered in the winter months.

In warmer temperatures, the wax is an oily liquid in the fuel. However, when temperatures become cold enough to reach the "cloud point", the paraffin wax within the diesel begins to solidify and turns into a cloudy mixture, eventually leading to gelling, without intervention.

In turn the wax will form crystals which can clog fuel filters and lines, stopping fuel from flowing and ultimately, stopping your engine from running. This is also known as fuel starvation.

Ice

During the cold weather, free water in fuel will freeze. Ice crystals will behave like wax crystals, blocking filters and pipes, causing abrasive wear to fuel systems, and preventing fuel flow. To help avoid diesel gelling problems, the properties need to be adjusted seasonally to ensure good performance in low temperatures.

Definitions

- **The gel point**: the temperature point at which diesel turns solid and can no longer flow through the fuel lines.
- **The pour point**: the factor which determines the temperature at which a fluid starts to solidify; it's the temperature at which diesel freezes. At this point, fuel will freeze solid in lines.
- **The cloud point**: the temperature at which paraffin creates cloudy deposits within the fuel; this varies depending on fuel characteristics, but the majority of good quality fuels have a cloud point of around 32°F/0°C (untreated)
- **The cold filter plugging point (CFPP)**: the temperature at which crystals will rapidly plug fuel filters, starving the engine and preventing it from starting or stopping it from working.

Recognizing waxing problems

If your fuel has a yellow/white deposit or cloudy appearance, your diesel may be reaching the 'cloud point' and your generator will be at risk of damage.

If your engine is stuttering, stalling, damaged or fails to start at all, your generator diesel may be beginning to solidify, so it's important you act quickly to avoid serious engine damage.

Preventative measures to prevent diesel gelling

Your diesel specification will vary according to the time of year, with different grades for summer and one grade for winter, the latter being more resistant to cold, with a minimum -12°C cold filter plugging point (CFPP min).

Summer grade fuel is certified for use during the warmer months with a limited resistance to cold with a -4°C CFPP min. Summer grade fuel has a higher cloud point, so it's not suitable for use during winter where lower cloud point diesel is needed.

To avoid winter waxing, our recommendations are:

- Ensure that you're using the correct grade fuel
- If you're using the wrong type of seasonal fuel, change over ASAP
- Keep your tank topped up and do not let it drain low

This will help reduce any free water entering the fuel system and cause ice crystals forming and any gelling occurring.