



# TECHTALK



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## WINTER'S EFFECT ON DIESEL FUEL

**What can we expect this Winter, in the Southern Hemisphere, and next in the Northern Hemisphere?**

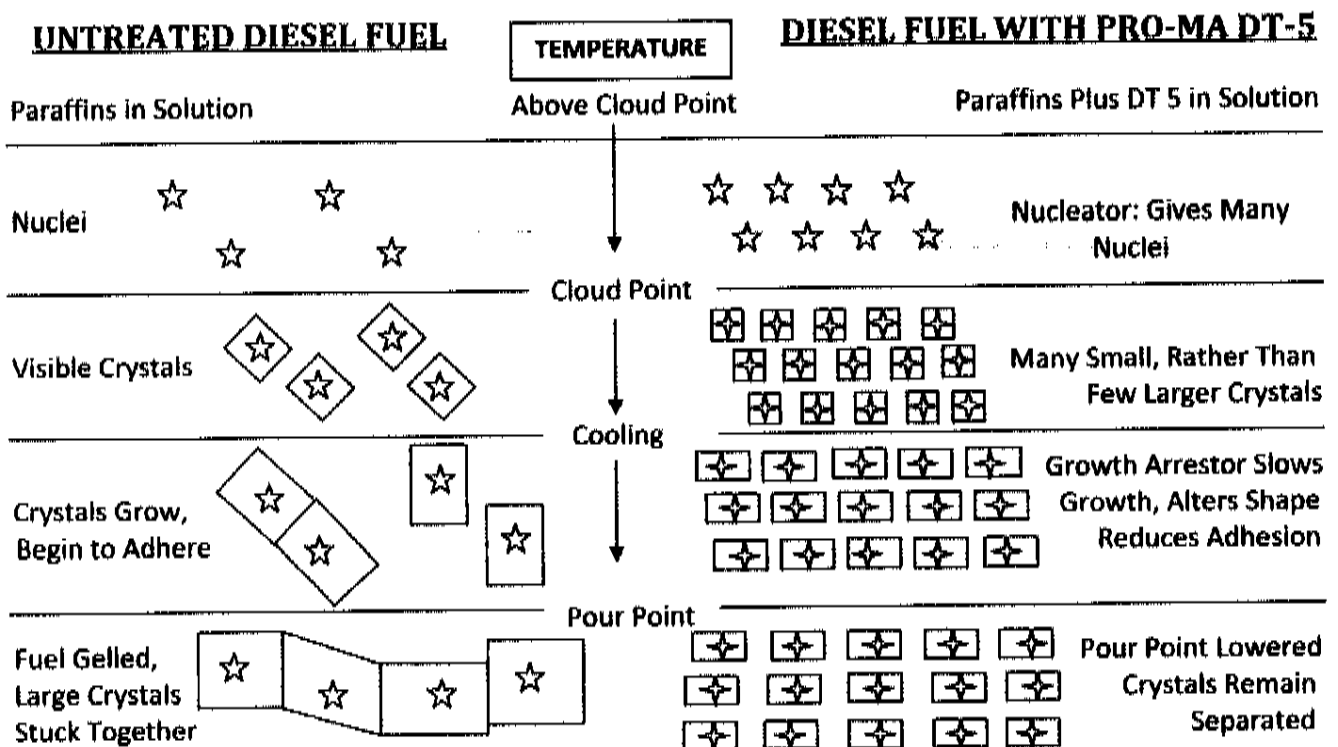
As the ambient temperature decreases, the **Waxes (Paraffins)** in solution in the fuel become denser, and the viscosity of the fuel increases. This condition becomes more significant in **Bio-Fuels** than **Mineral Diesel Fuels** due to the characteristics of the ingredients used in their manufacture.

This increase in density places more mechanical load on the **Fuel Injection** components, particularly in **Common Rail Injection Systems** which have extremely high injection pressures, and very close component tolerances. Refer my last Article entitled "**The Ideal Diesel Fuel for your Engine/s**".

The **Ethanol or Methanol** in **Bio-Fuels** have a hygroscopic action, capable of attracting up to 15% of their volume of atmospheric moisture. When this moisture approaches freezing point ( $0^{\circ}\text{C}$ ), the **Ice crystals** that form in the fuel can also block fuel flow, and can be confused with the **CLOUD POINT**, as their appearance is similar to the wax crystals that form in the Fuel in low ambient temperatures.

Each month, Oil Companies adjust the Reid Vapour Pressure in the Fuels for specific blends according to the particular Zones in which they expect the Fuels to be used. In our Alpine areas, is not uncommon for Oil Companies to blend up to 40% Kerosene (Paraffin) with the Diesel fuel to assist with engine starting and operating in Snow Country. This practice often results in reduced engine life, as Kerosene burns hot and dry, in comparison with normal Mineral Diesel fuel.

The following Chart shows the development of Wax Crystals between Diesel Fuels with and without Pro-Ma DT5 Diesel Treatment as the Ambient Temperature drops. The **CLOUD POINT** is the stage when the Wax Crystals first become visible. The **POUR POINT** occurs when the Diesel Fuel ceases to flow, as the **Wax clogs Fuel Filters**.



**KEEP YOUR ENGINES OPERATING WELL USING PRO-MA DT-5 DIESEL TREATMENT**