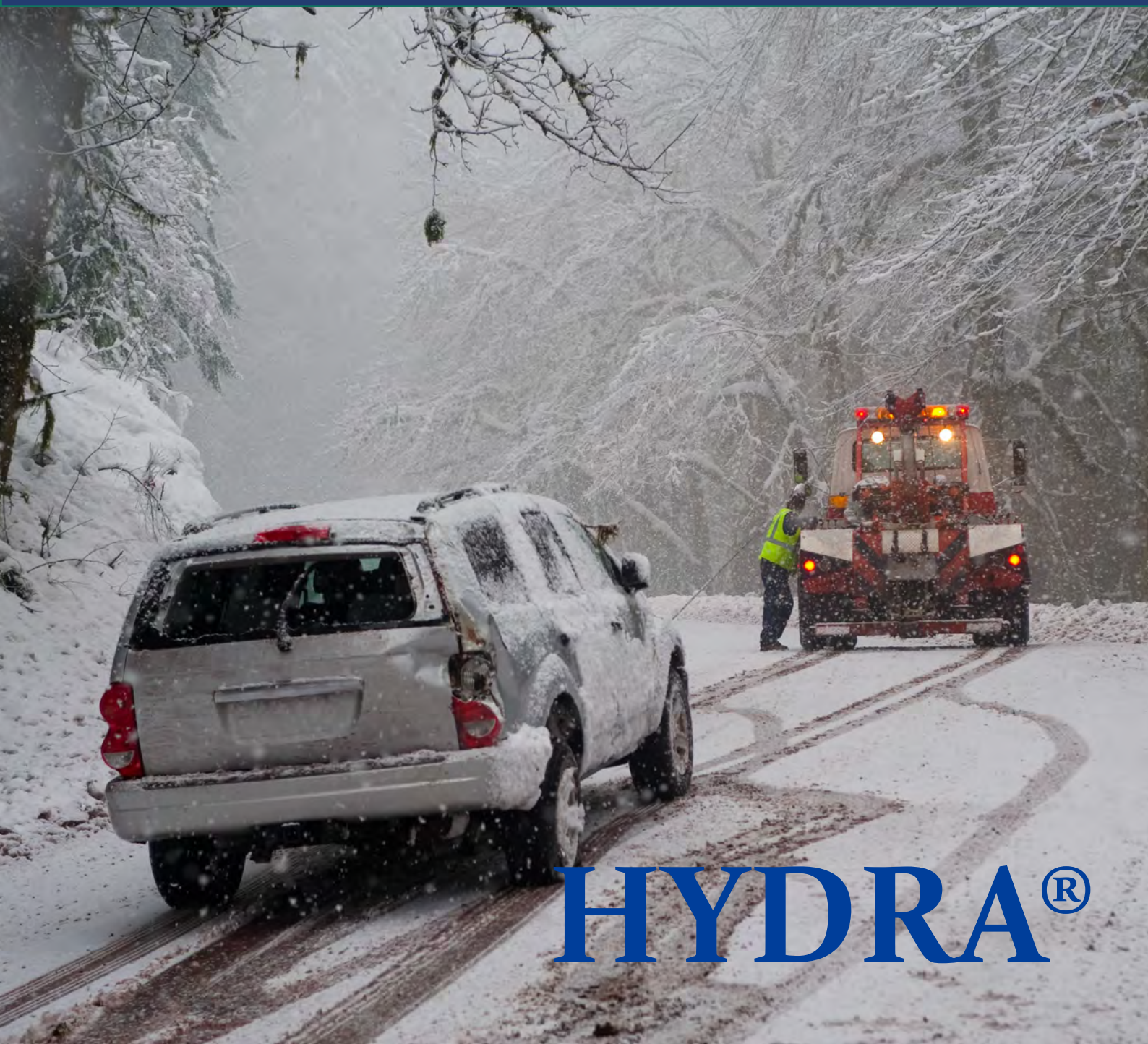
HYDRA
Winter Cold Flow

Solves Diesel Fuel Cold Flow Problems
Improves Low Temperature Operating Range



Features & Advantages

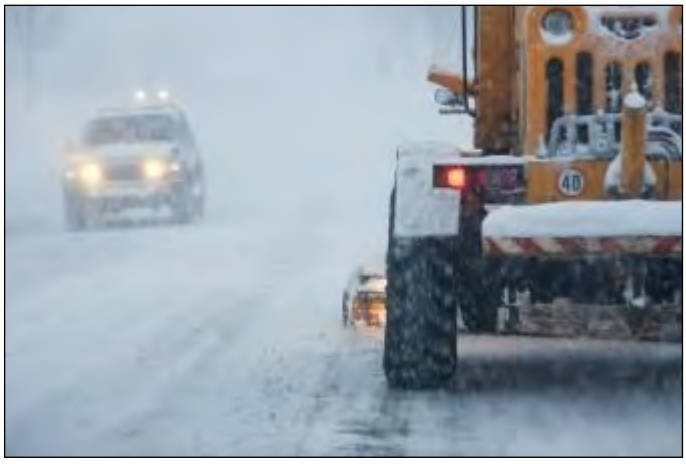
- Solves Diesel, MGO Cold Flow Problems.
- Improves Low Temperature Operating Range.
- Converts Summer Fuel to Winter Diesel.
- Reduces CFPP (Cold Filter Plugging)
- Improves the filterability and cloud point of diesel fuel.
- Prevents gelling of diesel fuel.
- Improvement up to –10°C to –31°C depending on the fuel quality.
- Compatible with all diesel fuels including pure bio-diesel.
- Dose rate 1 litre treats up to 1,000 litres diesel fuel.

The Problem

After reefing ultra-low sulphur diesel contains natural waxes called paraffin wax. These tiny wax molecules are suspended in the fuel along with carbon molecules and other substances.

When the wax molecules are small, they can easily pass through a fuel filter and act as a lubricant for the injectors and fuel pump.

The problem with wax occurs as temperatures fall. Diesel has a cloud point, at temperatures lower than this the wax molecules start to grow crystals, as these grow they clump together (commonly called gelling) until eventually they are large enough to plug the fuel filter.

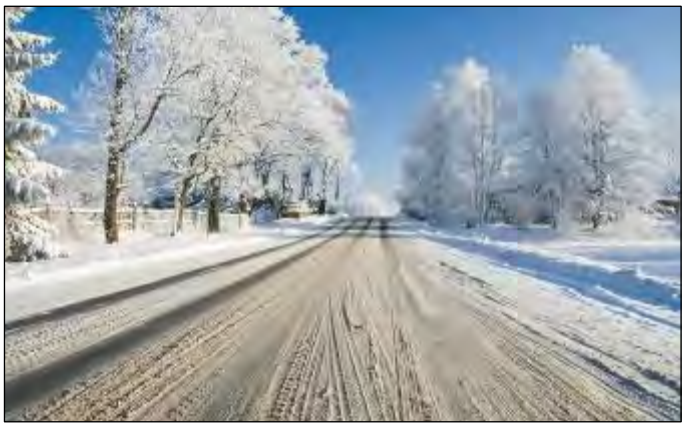


The temperature at which your filter plugs and flow ceases is called the CFPP (Cold Filter Plug Point).

The CFPP is very important, if the temperature drops below this minimum temperature filters will block and fuel flow will stop, starving the engine of fuel.

The Cloud Point and the CFPP both vary depending on your location in the world and fuel quality from a particular refinery often this will vary from batch to batch.

To summarise - the waxes in diesel fuel bind together when temperatures fall, and get by growing crystals these paraffin waxes block the fuel filters.



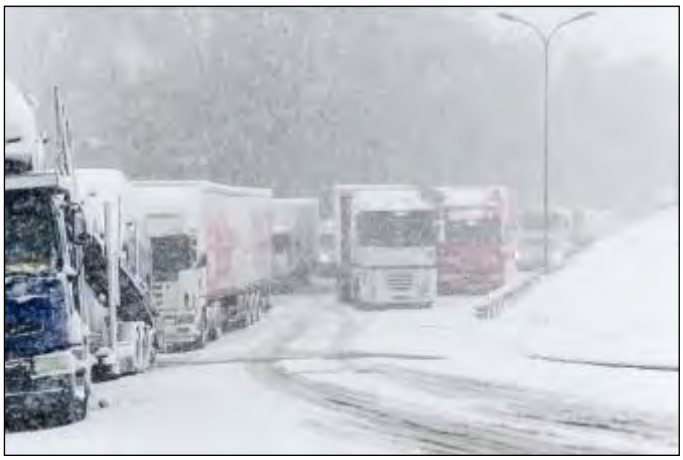
Summer / Winter Fuel Grades

Refineries make different grades of diesel descripted as Summer and Winter grades.

Winter grades are manufactured to ensure they will still flow at temperatures normally encountered in that particular region during the winter months.

In general, when properly treated with winter cold flow additives at the refinery, the CFPP will be 18°F below the Cloud Point. If your fuel is treated with additive and gets cloudy at 10° F, filters will be plugged at -8° F.

The Winter diesel grade is normally made a couple of months before temperatures start to drop, this is to allow existing Summer Fuel to be used up. So users have the correct fuel when temperatures fall.



Description

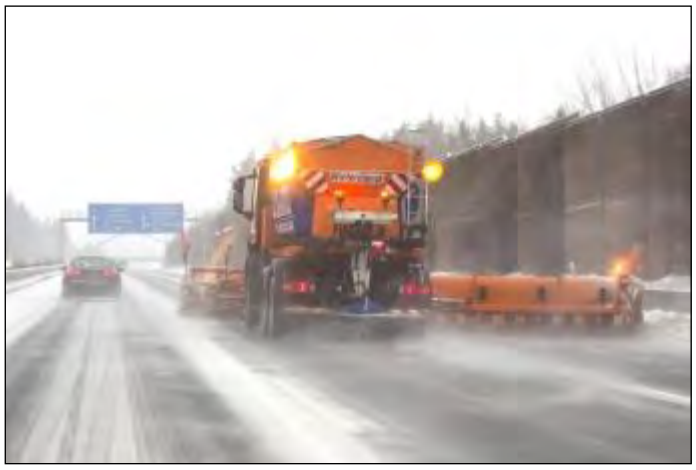
OTHER FUEL GRADE PROBLEMS

Poor Winter Fuel Quality

As mentioned, Cloud Points are usually less than 10° F for diesel fuel. That means cold flow additives should protect fuel down to -8° F, and kerosene could provide some additional protection. However, new factors this year have fundamentally changed conventional diesel fuel winter performance.

Refineries are buying from a variety of crude sources, leading to highly variable feed stocks. Diverse feed stocks have also made fuel quality less predictable.

Extremely waxy fuel is causing fuel to gel even when Cloud Point is at ideal levels. This is a major factor behind the increase of gelling incidents this winter. Chemical lab tests show high wax contents in diesel in some areas this year, this requires much higher kerosene addition by the refinery and additive treatment rates than normal.



These concerns are amplified by **biofuel content**, which can contribute to higher gelling temperatures. Biofuels are produced using a variety of different oils, ranging from soybeans and corn to animal fat.

These can contribute to further filter clogging at cold temperatures. Every litre of diesel fuel in the EU contains up to 8% biofuel.

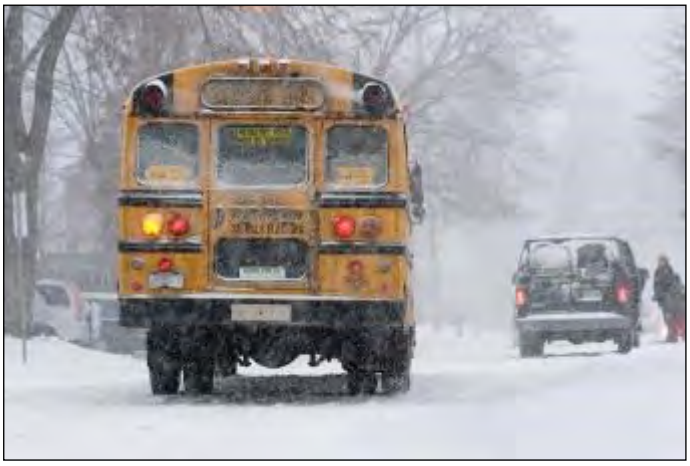
Is It Really Gelling?

Gelling incidents can be caused by water in the fuel, rather than paraffin wax. Like wax, frozen water can clog a fuel filter and cause engines to shut down. Water freezes at much higher temperatures than fuel, so if your filters are causing troubles at 20°-30° F, you may have an ice issue.

Checking whether you have ice in your filter is a fairly simple task. Just remove your fuel filter and if you see a thick waxy substance, you have fuel gelling.
To fix it, use Hydra Winter Cold Flow.

If you see an icy build-up, simply warm the filter to get fuel moving through it once again then use Hydra Fuel Drier to absorb the water.

LOW TEMPERATURE PROTECTION



Keep Hydra Winter Cold Flow on-site. While higher winter treatment rates should prevent gelling, sometimes fuel sits for prolonged periods, or you may have summer fuel in your tank, a common problem in boats.

With unpredictable temperatures this year, having extra winter additive and emergency fuel drier (Hydra Fuel Drier) will keep your vehicle running through the extreme winter cold.

How To Use

Can be used with Bio-Diesel up to B20 (20% bio content). Reduces Cold Filter Plugging Point according to EN116 / IP309 and pour point according to IP15 / ISO3016. Hydra Winter Cold Flow is compatible with Hydra Fuel Plus Biocide.

Hydra Winter Cold Flow must be added before the first crystal have formed, as any crystals already formed cannot be dissolved by the product.

Ideally Hydra Winter Cold Flow should be at room temperature and the diesel fuel being treated should not be below 0°C.

Dosage Rate

1,000ppm (1:1,000) can be increased to 2,000ppm (1:500) to give enhanced protection. Available in different pack sizes for ease of use, simply add to fuel when filling up.

Add before refuelling.

Dilutions can vary depending on quality of your fuel as explained earlier and also your geographic location, you may have lower local temperatures that you need to protect to.

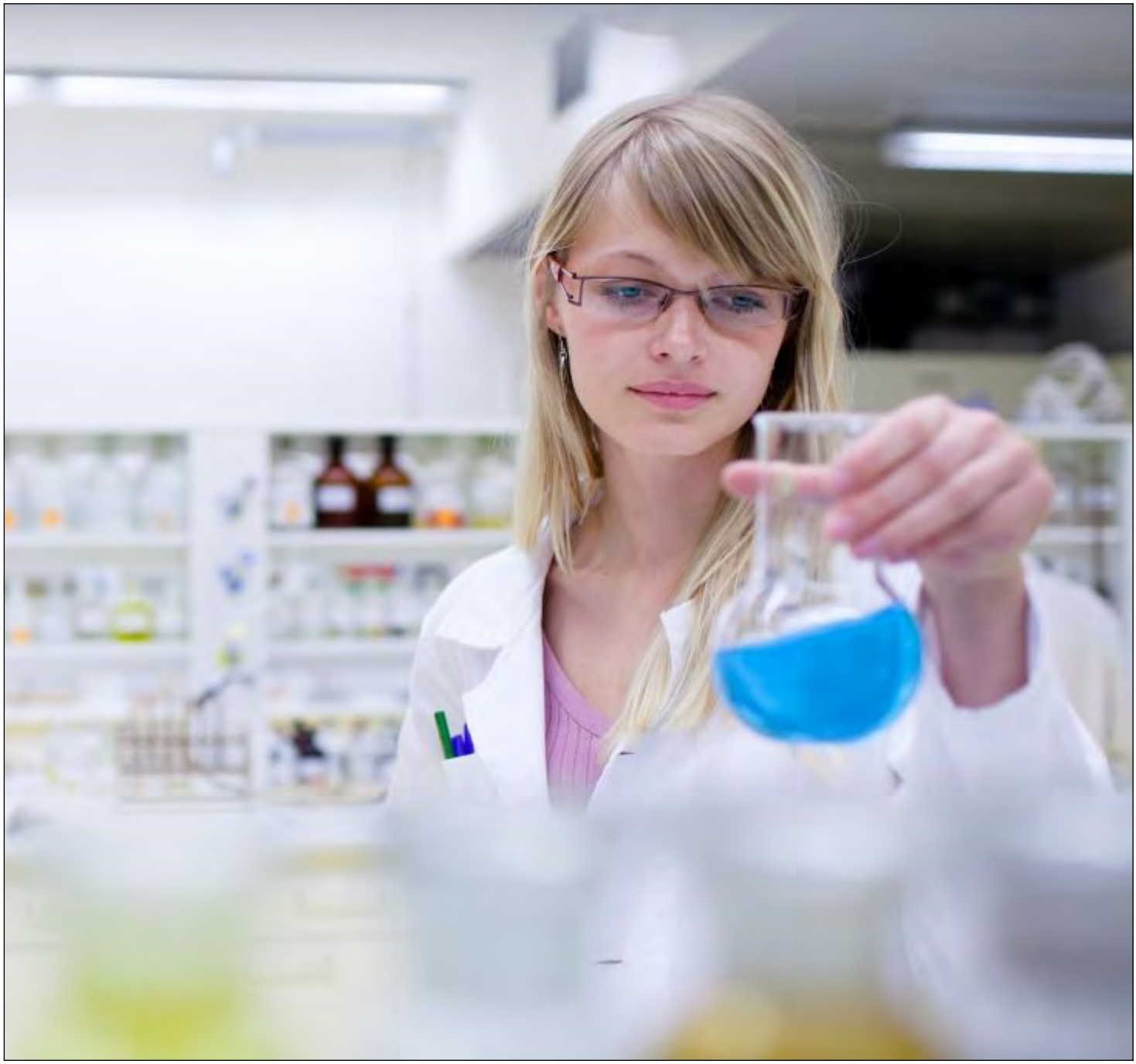
All our products are manufactured to the highest International Specifications at our UK plant.

This plant is accredited to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 ensuring that EN 590:2009 fuel quality standard is always adhered to.

Hydra Facilities

Hydra International Ltd.'s Research & Development Laboratories are a hub of activity where new products are developed and formulated. We have working relationships with our raw material suppliers, many of these suppliers are major world-wide chemical manufacturers with their own development laboratories.

As a company we are well known in the chemical industry for being receptive to cutting edge new chemicals which can be incorporated into our products to achieve performance advantages. An important part of the International Standards that we hold is that of constant improvement. We show that we have achieved this at every independent audit.



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