

Coolant and antifreeze checklist advice from Finol

Ireland has seen shifting weather patterns this year, with both extreme heat and cold. Therefore, it is essential that your engine is well protected in these conditions ensuring that your vehicle operates efficiently. The first step is choosing the right antifreeze/coolant for your vehicle. Coolant is a liquid that keeps our engines from overheating, while antifreeze stops the coolant system from freezing in colder months. There are a number of types and variants available on the market. Below Finol Oils looks at some of the key pieces of information when we talk about these essential liquids

Antifreeze and Coolants

Traditional antifreeze/coolants were mainly blue or green no matter what specific brand you chose. Antifreeze was mixed 50/50 with water and then poured into the radiator. As the engine operated, the antifreeze completed its primary function of carrying heat to the radiator, averting freezing and defending against corrosion within the cooling system. You then changed the antifreeze at the recommended service period.

Today, antifreeze technology is available in a wide array of ranges and colours causing confusion as to what antifreeze is best. Rather than colour, we should be looking at how it is produced. Manufacturers make coolant with ethylene glycol, a compound produced from ethylene (ethylene oxide) or with the compound propylene glycol.



How antifreeze has evolved
Inorganic Acid Technology (IAT) is the chemical foundation for the original green or blue antifreeze. IAT contains either ethylene glycol or propylene glycol and is mainly built up with silicate or phosphate additives to increase its compatibility with metal cooling system components. The generally recommended replacement interval is every year.

What do IAT and OAT mean?

As we have seen, Inorganic acid technology (IAT) is the chemical composition for the traditional green, yellow or blue antifreeze.

Organic acid technology (OAT) on the other hand is a Long-Life Coolant usually

made of ethylene glycol and is commonly used in Europe. It also has a vastly superior recommended replacement is 5 years or 240,000km

Hybrid Organic Acid Technology (HOAT) is a combination of IAT and OAT with nitrites and actually existed prior to the development of OAT technology. The generally recommended replacement interval is 3 years or 240,000km.

Why are there so many types?

As the need for antifreeze grew, manufacturers became increasingly aware of the different needs for each region. This meant that different compounds and formulas were needed to suit specific regions. European countries had extremely hard water. As antifreeze and water are a 50/50 mix, water quality drastically impacts the overall mix. European manufacturers then began to move away from phosphate-based technology because of the tendency to form scale. On the other side of the world, Japanese manufacturers began to move away from silicates, due to issues with silicate gel drop out.

As well as being better corrosion inhibitors for the global market, other issues sped up formula change. Toxicity is behind the use of propylene glycol rather than ethylene glycol, while the promise of longer-lasting engine protection and less maintenance spur development of the newest formulations.

Does Antifreeze Breakdown?

In short, yes engine antifreeze will break down, producing acidic decomposition products. Antifreeze buffering agents counteract this acidity. Since antifreeze

will leak over time, most systems are refilled or added to, extending its life depending on what antifreeze you use.

Can you mix antifreeze?

It is best to use the same type of coolant originally used in your vehicle, or the vehicle manufacturer's recommendations. According to experts within the industry, if you don't know what coolant is in the vehicle and you add another brand, nothing bad will occur.

But if the mixture of the technologies is close to 50%, the effectiveness of each coolant's inhibitor package is affected. In general, if mixing coolants, the recommended coolant change period will fall to that of the shorter life coolant.

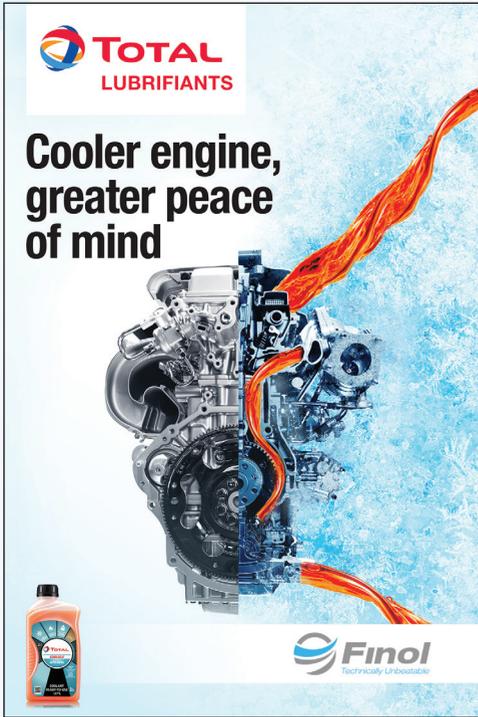
Management is essential

As you have seen with anything automotive, correct maintenance is essential to longevity. Just as important as the type of antifreeze you use is the ability to maintain the cooling system properly. This is done by preserving freeze point protection and proper coolant level. Coolants work best at the ideal freeze point mixture, which usually means a 50/50 antifreeze-to-water mixture.

Also maintaining proper freeze point protection ensures corrosion inhibitors exist at recommended levels. Vehicle manufacturers create cooling systems to operate with the optimum level of antifreeze. A system that is continuously low on coolant creates an extremely corrosive environment due to the aggressive nature of the glycol/water mix. Check your coolant system capacity, simply check your vehicle's manual.

What type of Water Should you Use?

In many countries, including Ireland, tap water contains minerals such as magnesium and calcium. These minerals can form deposits in a cooling system, especially on the engine's hottest parts.



The water you use to mix the antifreeze is critical. All pre-mixed coolants are produced with distilled water. Use distilled water, not tap or filtered water, when you

refill any cooling system.

Continuous engine protection

The proper coolant level is still extremely important after turning off the engine. As the coolant stops flowing and the engine temperature increases dramatically, areas of residual boiling can send large shock waves through the engine causing havoc on components, especially those made of aluminium.

Why Choose Total Coolants?

TotalEnergies's Coolelf and Glacelf are premium coolants with approvals from the leading OEMs in the industry. Designed around OAT inhibitors, Coolelf Auto Supra -37c Total Coolants provide a solution for issues that arise from the complexity and technological advances within modern vehicles.

Low additive depletion rate guarantees longer coolant operational life and complete coolant system protection under all conditions. This longer life allows for extended drain intervals with reduced maintenance downtime, less coolant replacement costs and less possibility of harming the environment.

For more information contact Finol Oil's team for any technical advice at 01-4555 484 or go www.finol.ie/coolants-antifreeze.