



Premium Cool Plus

Ethylene Glycol based engine coolant concentrate

Description

Castrol Premium Cool Plus is an ethylene glycol based engine coolant concentrate containing a balanced mixture of organic acid and inorganic corrosion inhibitors specially designed to service the requirements of a broad range of heavy duty diesel engines, particularly those with wet liners. Castrol Premium Cool Plus is a low silicate, phosphate and amine free formulation providing extended service life protection for Lead Solder, Aluminium, yellow metal and ferrous alloys. The inclusion of a number of corrosion inhibitors prevents corrosion occurring in the number of dissimilar metals found in modern engine cooling systems. Castrol Premium Cool Plus satisfies or exceeds major industry coolant standards and is satisfactory for use in major U.S., European and Japanese heavy duty diesel engines.

Application

Castrol Premium Cool Plus has been used successfully for a number of years in a range of U.S., European and Japanese turbocharged and naturally aspirated diesel engines. It is particularly recommended for wet liner engines, operating in both on-highway and off-road environments and arduous city stop-start driving conditions. It is Castrol's prime recommendation for all US heavy duty diesel engine coolant systems. While it is suitable for Mercedes Benz and other European engined vehicles, Castrol Radicool NF is the prime recommendation for most European diesel engines.

Castrol Premium Cool Plus is not generally recommended for passenger car and passenger car type light commercial vehicles which may have zinc or zinc alloy type components eg some early model Commodores. (For these applications, Castrol Radicool or Radicool NF are recommended). Otherwise, the product is most suitable for use in petrol engined and light commercial vehicles as is evidenced by the fact that it comfortably exceeds all the requirements of the latest Australian Standard for passenger car coolants **AS2108-2004**.

Castrol Premium Cool Plus when used and maintained as prescribed is suitable for use where the performance requirements of the following standards and specifications are recommended or cited:

- AS2108-2004
- GM1899M performance specification (specific to the GM6038 recipe)
- GM1825 performance specification (specific to the GM6043 recipe)
- Caterpillar EC-1
- Ford ESE-M97B44-A (Automotive)
- Ford ESE-M97B18-C (Heavy Duty Tractor and Diesel)
- Detroit Diesel Allison 7SE298
- Type P (Renault)
- Saab FCD 8704
- MWN Diesel 234 2/15
- Nissan NES 5059 LLC
- Mazda MES MN 121D

Conditions of Use

Castrol Premium Cool Plus is a concentrate and should be added to cooling systems mixed at a ratio of 50% v/v, or as recommended by the engine manufacturer with good quality water. It is NOT recommended to be used below 40% v/v or above 55% v/v. Going above or below these recommended concentrations will decrease the level of corrosion protection significantly. For optimum cooling system life and engine protection, it is essential to use distilled, deionised or demineralised water for making up the coolant. Rain water and "soft" water from areas such as Melbourne, Sydney and Tasmania are preferred to "hard" high mineral content water. Use of "hard" water will decrease the level of corrosion protection significantly and may lead to unacceptable system deposits being created in the cooling system.

Castrol Premium Cool Plus, when used at 50% v/v with good quality water, contains sufficient additional inhibitors to enable it to be used as an initial fill fluid without the need for an initial charge of a Supplementary Coolant Additive (SCA) where this is required by the OEM. The SCA cartridge (where fitted) should be replaced with a zero SCA unit water cartridge until the next service where an appropriate SCA adjustment should be made as described in the Castrol Heavy Duty Coolant Test Kit instructions.

Advantages

Feature

- Balanced formulation of organic acid and conventional inhibitors
- Out performs most OAT only coolants in terms of Lead and Aluminium corrosion protection
- Inhibitor levels can be tested using conventional HD coolant test kits
- Covers the needs of a wide range of engines
- Fully conforms to the warranty requirements of most major HD diesel engines
- Compatible with most commercial SCA's
- Guaranteed to perform when used as prescribed

Benefit

- Guaranteed performance in the widest range of diesel engines
- Suitable for older Copper ocre radiators as well as modern alloy systems
- Quick on site testing for maximum coolant life and system protection. Less costly to maintain than OAT only products which need to be tested in a laboratory
- Less coolants need to be stocked, assists rationalisation
- Guaranteed wet liner and cooling system protection
- Less chance of incompatibility
- Peace of mind

Typical Characteristics

Name	Method	Units	Premium Cool Plus
Appearance	Visual	-	see notes
Reserve Alkalinity	ASTM D1121	ml 0.1N HCl	20
pH, Engine Coolants (50%)	ASTM D1287	pH	7.8
Density @ 20C	ASTM D1122	g/ml	1.138
Foam, Tendency of Engine Coolants	ASTM D1881	ml	40
Foam, break time	ASTM D1881	seconds	-
Freezing Point (50% v/v)	ASTM D1177	oC	-37
Flash Point (open)	ASTM D1310	oC	116
Boiling Point	ASTM D1120	oC	181

The above data is typical and does not constitute a specification

Product Performance Claims

ASTM D3306(I)
ASTM D4985
ASTM D6210
AS/NZS 2108-2004

Recommended Concentrations

Concentration

The recommendations nominated by the engine manufacturers should be strictly adhered to. All US HDD engine manufacturers recommend the use of an SCA in conjunction with the correct glycol concentration for effective cooling system corrosion protection, equipment life and performance.

Glycol Content

Glycol content should be measured using a refractometer which provides both the level of freeze point protection and glycol concentration directly. Over concentration may increase the risk of overheating or water pump seal damage, whilst under-concentration i.e. LESS THAN 40% (generally through dilution) may lead to a decrease in service life, premature corrosion and/or cylinder wet liner pitting.

Corrosion Inhibitor Concentration

Where the use of additional SCA's is specified by the engine manufacturer, use the Castrol Heavy Duty Coolant Test Kit to monitor the levels of the extra corrosion inhibitors which have been added for wet liner protection. This will provide a good indication of nitrite and molybdate concentration.

Topping Up

Castrol Premium Cool Plus 50 is the prime recommendation as this is already pre-mixed with distilled water to the correct concentration. If desired, use Castrol Premium Cool Plus mixed 50% v/v with good quality water (distilled or deionised) where coolant loss has occurred to ensure the inhibitor concentration is maintained. When servicing and/or topping-up the cooling system, start and run the engine for 5 minutes to circulate the fluid. Check for leaks and top up the system with the 50% v/v mix (or Castrol Premium Cool Plus 50)

DO NOT TOP UP THE COOLING SYSTEM with just water. Always use a pre-mix at the correct concentration.

Each service or top-up of the coolant system should immediately be followed by measuring the glycol content and nitrite and molybdate levels.

User Advice

Service Life

Provided that the correct quality water is used for dilution and the Nitrite and Molybdate inhibitor levels are monitored with a suitable test kit (where this is required by the OEM), such as the Castrol Heavy Duty Coolant Test Kit and maintained with a suitable SCA and that the coolant system is maintained at the correct glycol level (ideally using a refractometer), Castrol Premium Cool Plus should last for at least one million kilometres or 8,000 hours or four years whichever occurs first. It may be possible that at the end of this period, Castrol Premium Cool Plus may be suitable for further use but this needs to be confirmed by laboratory testing of your coolant. However, the individual engine manufacturers' specific recommendations should always be adhered to in this regard in terms of desired inhibitor levels and glycol content.

Servicing Guidelines

The correct glycol concentration must be maintained throughout the service period. (The glycol level should be monitored with a refractometer). Where it is specified by the engine manufacturer (eg Caterpillar, Cummins, Detroit, Mack) an SCA must be used throughout the service life. Refer to the Castrol Heavy Duty Coolant Test Kit instructions for further detail.

As a general guide, where the use of additional SCA's is required by the engine manufacturer, the supplementary inhibitors in Castrol Premium Cool Plus should be topped up at least every 200,000km / 6 months / 4,000 hours of operation, whichever occurs first as described in the Castrol Heavy Duty Coolant Test Kit instructions.

If it is preferred to use water filters with SCA, fit a 4 or 6 unit SCA filter at each engine oil service interval for Caterpillar, Detroit and Mack engines. For Cummins engines, use an 8 or 12 unit SCA filter at each engine oil service interval. If a liquid SCA is used, a zero SCA water filter should be replaced at the service interval where one is fitted. Remember to adjust the glycol content to 50% or as recommended by the OEM after adding liquid SCA.

Additional Information

Product Compatibility

While Castrol Premium Cool Plus has been shown to be physically compatible with a number of other industry products, it is Castrol's recommendation that for optimum product life and performance Castrol Premium Cool Plus should not be mixed with other coolants.

For further advice when changing coolant brands please contact the Technical Services Manager in your local Castrol office or the Castrol Technical Advice Line on 1300 557 998.

Castrol Premium Cool Plus is designed to be compatible with materials normally used in automotive cooling systems which include rubber hoses, gaskets, rubber seals and plastic components.

Removal

Bare Metal Surfaces: Remove with Castrol solvent cleaners or water based degreasers.

Hand Cleaning: Use any of the Castrol range of hand cleaners; e.g. CareClean Plus.

Other Surfaces: Contact your local Technical Advice Line on 1300 557 998.

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