AC-7 HDD COOLANT

Total Heavy Duty Diesel Engine Coolant Type A
Extended Life OEM Compatible

PRODUCT DATA SHEET

Use - AC-7 is highly recommended for use in heavy duty diesel engines and light duty diesel for complete cooling system protection.

Product Information

AC7 is an advanced heavy duty diesel (HDD) formulation anti boil/anti freeze coolant with nitrate / nitrite chemistry. The product is based on a combination of organic technology corrosion inhibitors with conventional heavy duty chemical inhibitors common to USA technology for compliance with Cummins, Detroit and CAT equipment that contain low silicate, nitrite, nitrate and molybdate. This coolant contains nitrite based technology and is suitable to typical measuring techniques.

AC7 in concentrate form contains 90% monoethylene glycol and a **heavy duty inhibitor package** ensuring ultimate corrosion protection and extended service life when compared with conventional coolants. Anti boil and anti freeze protection is equally afforded with a substantially higher rust and corrosion protection than competitor products. AC7 is the ultimate in up to date coolant technology. Provides maximum protection against 'hot spot' corrosion, common in aluminium cylinder heads, diesel engine wet sleeve liner pitting and eliminates hard water scale deposits. Important also is this product has no deleterious effects on hoses, silicon seals or gaskets. AC7 is suitable where SCA filters are recommended or required.

Austech AC7 meets or exceeds the following tests;

ASTM D6210	ASTM D3306
TMC RP-329	TMC RP-330 (PG)
CID A-A 52624A	Cummins AES14603

AC7 has a service life of up to 5 years / 750,000kms / 12,000hrs in heavy duty diesels. The service intervals are 1 year / 4,000 hours. There are obvious environmental advantages as a result of fewer coolant changes. It is suitable for use in marine engines, earth moving, mining, heavy transport and trucking fleet operations.

Typical Properties

Coolant Mix	Concentrate	50% Premix
Appearance	Mobile Liquid	Mobile Liquid
pH	N/A	7.9 - 8.6
Glycol by Weight	90.8%	45.4%
Density kg/L	1.11 - 1.13	1.05 - 1.07
Freezing Point (°C)	N/A	-34
Boiling Point (°C)	179	108
Glassware Corrosion Test	Pass	Pass
Aluminium Corrosion Test	Pass	Pass
Water Pump Cavitation Test	Pass	Pass
ASTM D 4340 Heat Reject Test g/cm2/week	0.3	0.3

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SPECIFICATIONS

TMC RP-338 Extended Life
TMC RP-330
ASTM D-3306
ASTM D-4985
ASTM D-6211
ASTM D-5216
GM® 1899
SAE J 1034 and JASO M 324
CID - A - A - 52624
Caterpillar® EC-1
Caterpillar® ELC
Case New Holland®
Cummins® CES 14603
Cummins® Bulletin 3666132
Cummins ES Compleat
Detroit Diesel® Bulletin 7SE298
EMD M.I. 1748E
Japanese JS K 2234
Iveco® Cursor Engine
SAE J 1034 and JASO M 324
Freightliner 48 - 22880
Komatsu® AF-NAC
Mercedes Benz® DBL 7700
Navistar®
PACCAR®
John Deere® 8650-5
John Deere® JDM HD24
Saab Scania® 6901
Waukesha 4-1974D
Volvo® (Spec No. 1286083)
BMW® N 600 69.0

PRODUCT CODES / QUANTITIES

Available in Concentrate Form

A/AC7/5	5L Plastic Bottle
A/AC7/20	20L Plastic Cube
A/AC7/200	200L Metal Drum
A/AC7/IBC	1,000L Intermediate Bulk Container [IBC]

Available in 50% Premix using Demineralised Water

A/AC7-50/5	5L Plastic Bottle
A/AC7-50/20	20L Plastic Cube
A/AC7-50/200	200L Metal Drum
A/AC7-50/IBC	1,000L Intermediate Bulk Container [IBC]

Manufactured Colours: Green - Red - Blue Available as Propylene Glycol Coolant

TEST RESULTS

ASTM D 1384 - GLASSWARE CORROSION TEST

Metal	Allowable Weight Loss	Typical Weight Loss AC7
Copper	10mg / coupon	0.5
Solder	30mg / coupon	1.5
Brass	10mg / coupon	0.2
Steel	10mg / coupon	-0.7
Cast Iron	10mg / coupon	-0.5
Aluminium	30mg / coupon	6.3

ASTM D 4340 - ALUMINIUM HEAT REJECTION TEST

Allowable Weight Loss	Typical Result AC7
1.0mg / cm^2 / week	0.3

ASTM D2809 - CAVIATION EROSION CORROSION

Rating (minimum)	AC7
8	8

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IMPORTANCE OF USING AC-7 HEAVY DUTY DIESEL FORMULATED COOLANT

These notes are provided to explain the importance of using Austech AC-7 Heavy Duty Diesel formulated coolant for use in heavy duty diesel engines. Proper maintenance and an understanding of the cause of potential issues will greatly increase the likelihood of trouble free engine performance.

Understanding Cavitation and Effects of Cavitations

Cavitation is the formation and collapse of air bubbles typically on the outside of cylinder walls but also found in water pumps, impellors and heater or radiator cores. The air often enters the system from leaks or a faulty radiator cap which reduces the system pressure and increases the likelihood of bubble formation. The bubbles form at the site of low pressure for as the cooling fluid fractures under low pressure air bubbles form. Waves of pressure passing through the coolant cause the bubbles to collapse and it is this implosion that causes ultrasonic pressures and temperatures in minute locations of extreme temperature and pressure. The end result in observable terms is pitting and damage to the engine and system components.

Properly formulated diesel engine coolants include ingredients to specifically combat cavitation by providing a protective coating to the metals of the cooling system. Together with proper maintenance that includes regular inspection, system flush and visual inspection of components (such as radiator caps) the system Austech AC-7 heavy duty diesel coolant provides maximum protection.

Rust & Corrosion Protection and Anti Boil Anti Freeze Properties

Water will produce a corrosive environment and mineral content may permit scale deposits forming in a cooling system. Austech AC-7 HDD Coolant also contains rust and corrosion inhibitors common to many automotive industry coolants for the protection of aluminium and alloys, iron and the yellow metals. The ingredients all work toward optimum pH control to prevent corrosion, water softening to deter formation of mineral deposits and These too are important in the overall package of protection. All ready to use premix coolants manufactured by Austech use demineralised water with a dissolved solids ppm of between 3 and 8.

Formulated Propylene Glycol Coolant and Ethylene Glycol Coolant

Some OEM's suggest or require the use of Propylene Glycol coolants as this is the legislative requirement in the USA. Performance specifications between ethylene glycol and propylene glycol are negligible though there are subtle differences such as boiling and freezing points when diluted and specific gravity. Propylene glycol is nearly as effective a freeze depressant as ethylene glycol and is less toxic. However, because its specific gravity is very close to water it is not possible to obtain a satisfactory field check for concentration using a hydrometer. A hand held refractometer calibrated for use with propylene glycol is satisfactory.

Note on Supplemental Coolant Additives (SCA)

The use of SCA's is governed by the OEM manufacturer of the engine. The use of SCA's has proven an effective measure for extending protection of the system in some situations. Coolant users need to check the requirements of the system and the suggested method of delivering the SCA. Engine manufacturers nowadays do not require the addition of an Initial SCA when coolant is added to the cooling system. The SCA is designed to deliver additives to the system that are lost over time due to depletion or caused by dilution of the coolant. The AC-7 is a full formulation coolant however Austech advocates compliance with the OEM recommendations for each engine type.

If any recommendations differ from the engine or vehicle manufacturers recommendations, follow the engine or vehicle manufacturers recommendations.

For more information on this product please contact Austech Chemicals on 07 3204 8511.