

Technical Data Sheet (TDS)

Shell Premium Engine Coolant NF Concentrate

Premium MEG Based NAP-Free Hybrid Coolant Concentrate



Shell Premium Engine Coolant NF Concentrate is an ethylene glycol-based engine coolant concentrate formulated for optimal performance in both light and heavy-duty engine applications. The inhibitors used in **Shell Premium Engine Coolant NF Concentrate** include organic additives in combination with borate and silicate which are known to provide excellent protection across all applications. **Shell Premium Engine Coolant NF Concentrate** is free from nitrites, amines and phosphates (NAP free). Other benefits include:

1. Thermal characteristics that permit effective engine cooling without boiling.
2. Outstanding anti-corrosion protection for cast iron, aluminium, brass, copper, solder and steel.
3. Protection against frost, depending on the concentration chosen.
4. Use of sophisticated silicate stabilization technology to ensure good compatibility with hard water.
5. Excellent antifoaming characteristics.
6. Exceeds the requirements of most other European and International Standards including: ASTM D3306, ASTM D4985, SAE J1034, BS 6580 (2010) and AFNOR NF R15-601.

Typical Properties Shell Premium Engine Coolant NF Concentrate

Appearance	Bright and clear, green
Density at 20 °C	1.123 g/cm ³ ASTM D 4052
pH (50% vol in water)	8.0 ASTM D 1287
Freezing Point (50% vol in water)	-37 °C ASTM D 1177
Boiling Point	170 °C ASTM D 1120
Boiling Point (50% vol in water)	109 °C ASTM D 1120
Reserve Alkalinity (ml HCl N/10)	14.5 ml ASTM D 1121
Foaming Characteristics at 88 °C	ASTM D 1881
- Height	30 ml
- Breaktime	2 seconds

**These are typical properties and do not constitute a specification, for specification limits please refer to the product specification. The product contains a bittering agent (denatonium benzoate) added at 70 ppm in compliance with all current international legislation that requires an aversive agent to be used in ethylene glycol based antifreeze.*

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Shell Premium Engine Coolant NF Concentrate complies with the following quality standards:

	Group	Standard
USA	ASTM Standards	ASTM D3306
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UK	British Standards	BS 6580 : 2010
France	French Standards	NF R15-601
Japan	Japan Standards	JIS K 2234
Australia	Australian Standards	AS 2108
International	SAE Standards	SAE J1034
Spain	UNE Standards	uNE 26361
Austria	Austrian Standards	ONORM V 5123
Italy	CuNA Standards	NC 956-16

Shell Premium Engine Coolant NF Concentrate is suitable for use with the following engine coolants specifications;

OEM	OEM Standard
Alfa Romeo, Fiat, Lancia	Fiat 9.55523
Audi	TL-774 C (G 11)
Behr	
BMW / Mini	GS 94000
Chrysler	MS-7170
Cummins	85T8-2
Deutz	DQC CA-14
Ford	ESD-M97B49-A
Iveco	Standard 18-1830
Jl Case	JIC-501
Lada / Avtovaz	TTM VAZ 1.97.717-97
MAN	324 Typ NF
Mercedes-Benz	MB 325.0
MTU	MTL 5048
Opel - GM	GME L1301
Perkins	
Porsche	TL-774 C (G 11)
Seat	TL-774 C (G 11)
Skoda	TL-774 C (G 11)
Toyota	1WW/2WW engines
Volkswagen	TL-774 C (G 11)
Volvo Cars	128 6083 / 002
Volvo Construction	(produced before 2005)
Volvo Trucks	(produced before 2005)

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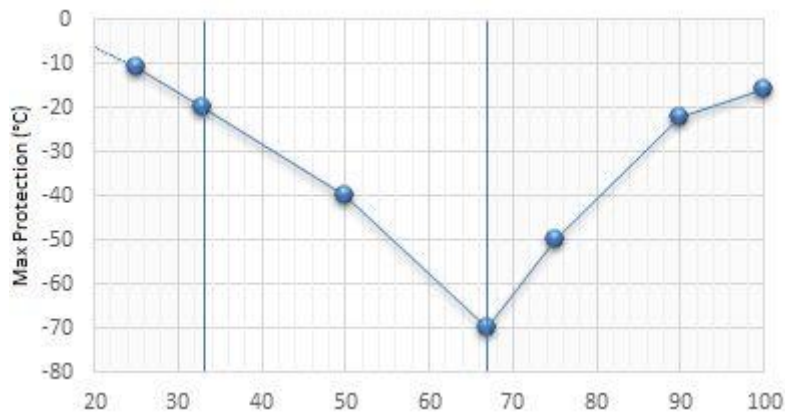


Freeze Protection

Shell Premium Engine Coolant NF Concentrate is a concentrated product and should be diluted for use with good quality water. Kemetyl recommends that for optimum performance distilled or deionized water is used. The freeze protection afforded by the various dilutions is detailed in the table below:

Concentration (vol %)	H2O (vol %)	Freeze Protection (°C)
33	67	-20
50	50	-40
67	33	-70

In order to provide a satisfactory level of corrosion protection it is recommended to use at least 33% (1:2) volume of **Shell Premium Engine Coolant NF Concentrate** in the coolant solution. In line with most car manufacturers Kemetyl recommends a 50% (1:1) volume solution for optimum performance. For cold climates use 67% (2:1) volume, concentrations above 67% volume are not recommended and give no advantage.



Freezing Protection = Average of Freezing Point (ASTM D1177) and Pour Point (ASTM D97)

Corrosion Protection

Protection from corrosion is the most important function of a coolant concentrate and is achieved by the inclusion of a well-balanced inhibitor package. In modern engines with the greater use of aluminium alloys and thinner section castings, avoidance of corrosion problems is critical.

The tables below demonstrate the effective corrosion protection provided when tested against the industry standards such as ASTM D1384 (multi-metal corrosion in glassware) and ASTM D4340 (corrosion of cast aluminium alloys under heat-rejecting conditions).

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ASTM D1384

(Glassware Corrosion, mg per test piece)

Test Specimen	Monoethylene Glycol (33% vol in H2O)	Shell Premium NF (33% vol in H2O)	ASTMD D3306 limit
Copper	6,5	0.9	10
Solder	345	2.0	30
Brass	8	1.0	10
Steel	1474	0.9	10
Cast Iron	2472	2	10
Aluminium	30	-2.8	30

ASTM D4340

(Corrosion of Cast Aluminium Alloys under Heat-Rejecting Conditions)

Mass Change (mg/cm2/week)	ASTM D3306 Limit
0,2	1,0

Compatibility

Although it is always recommended to use deionized or demineralized water to dilute antifreeze, **Shell Premium Engine Coolant NF Concentrate** is formulated to be able to cope with different water qualities and is compatible with hard water. **Shell Premium Engine Coolant NF Concentrate** is compatible with all types of plastics and rubbers used in engine coolant systems.

Shell Premium Engine Coolant NF Concentrate is fully miscible with other coolants and can be safely mixed with them. However, optimal performance and longevity of service can only be guaranteed by exclusive use of **Shell Premium Engine Coolant NF Concentrate**.

Storage and Handling

Shell Premium Engine Coolant NF Concentrate has a shelf life of a minimum three years when stored in air tight containers at a maximum temperature of 30°C. Translucent containers should not be stored outside in direct sunlight, especially in warm climates. **Shell Premium Engine Coolant NF Concentrate** can be stored in mild steel, lacquer lined or HDPE containers. As with any glycol-based engine coolant the use of galvanized steel is not recommended for pipes or any other part of the storage/mixing installation.

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Disposal of used or unused coolant must be carried out in accordance with local and national law, consult the material safety data sheet for further information.

Hazards and Safety

As with all chemical products, awareness and control of any potential hazards is of high importance. Please consult the material safety data sheet which is available detailing the hazards associated with this product.

The content of this Technical Data Sheet has been prepared by taking into consideration the relevant international standards and the information contained in specifications of vehicle and equipment manufacturers. This Technical Data Sheet and the statements in content cannot be interpreted as a guarantee commitment in respect of product specifications or usage in any application.

It is the consumer's responsibility to use this product in accordance with its ordinary purpose and comply with the applicable laws and regulations. Kemetyl Kimya San. Tic. Ltd. Şti. shall not be held responsible for any claims or damages arising out of abnormal use, improper usage, use for the wrongful purposes or risks and consequences by the nature of product structure.

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