

# Technical Data Sheet (TDS)

## Shell Premium Heavy Duty Coolant N Concentrate

### Premium MEG Based Heavy Duty Nitrited OAT Coolant



**Shell Premium Heavy Duty Coolant N Concentrate** is an ethylene glycol-based engine coolant concentrate. The additive package is designed with the latest inhibitor component technology to produce finished antifreeze which is free of borates, nitrates, amines, phosphates and silicate. The combination of the long lasting organic additives with carefully selected mineral inhibitors makes this technology extremely suitable for application in heavy duty cast iron engines. When mixed with water at the appropriate rate, the coolant will provide the following advantages:

1. Improved anticorrosion protection of all metals and especially cast iron which makes this product extremely useful in heavy duty application.
2. Excellent protection for cylinder liners from the effects of cavitation-erosion
3. Thermal characteristics that permit effective engine cooling without boiling.
4. Elimination of deposit problems caused by the use of hard water.
5. Protection against frost, depending on the concentration chosen.
6. Excellent antifoaming characteristics.
7. Meets most European and International Standards including **ASTM D6210**.
8. Suitable for use against applications requiring the **CAT EC-1** standard.

#### Typical Properties Shell Premium HD Coolant N Concentrate

Appearance	Clear liquid
Density at 20 °C	1,12 g/cm <sup>3</sup> ASTM D4052
pH (50% vol in Water)	8,3 ASTM D1287
Freezing Point (50% vol in Water)	-37 °C ASTM D 1177
Boiling Point	170 °C ASTM D 1120
Reserve Alkalinity (ml HCl N/10)	5,5 ml ASTM D 1121
Water Content	3,3 % wt ASTM D 1123
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. Product can be dyed to different colours upon request.*

Main International standard requirement met by **Shell Premium Heavy Duty Coolant N Concentrate**: BS 6580 (GB); FVV Heft R 443 (D); AFNOR R 15/601 (F); SAE J1034\*; JIS K 2234\* (J); KMS 2142 (K); CUNA NC 956-16 (I); UNE 26361-88 (E); EMPA (CH); E/L 1415c (MIL Italy); NATO S 759; ASTM D6210 and 6211.

\* except reserve alkalinity

OEM specifications met by **Shell Premium Heavy Duty Coolant N Concentrate**:

CAT EC-1; Navistar B1 Type III; Cummins CES 14603; Mercedes DBL 325; Detroit Diesel/SE298; Land Rover C. S.; GM 1825/1899 H. T.; MTU 5048; Volvo Saab Scania 6901; Kenworth R 026-170-97; John Deere HD24; MAN 324; Mack 14GS7009; Freighliner 48-22880; New Holland WSN-M97B18-D; Peterbilt 8502.002; Paccar C. S.; IVECO 18-1830.

Kemetyl Kimya San.Tic.Ltd.Şti.

Küçükbakkalköy Mah. Dereboyu Cad. Brandium AVYM R5 Blok D:82 Ataşehir/İstanbul, Türkiye

Tel : +90 216 455 16 41-42 www.kemetyl.com.tr

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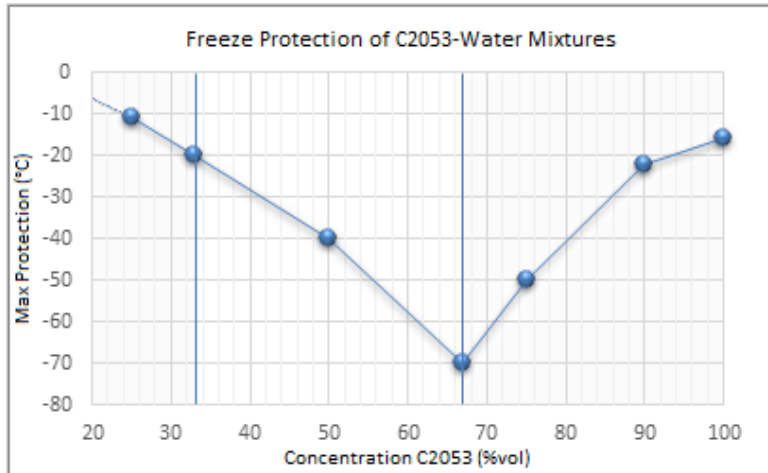


#### Freeze Protection

**Shell Premium Heavy Duty Coolant N 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 Heavy Duty Coolant N 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

The inhibitor package of **Shell Premium Heavy Duty Coolant N Concentrate** has been developed based upon latest technology to give long-term protection for all the metals presents in the modern heavy-duty engines, including aluminium and brass. **Shell Premium Heavy Duty Coolant N Concentrate** provides extra protection of the alloys used in the cooling system of modern vehicles. The tables below demonstrate the effective corrosion protection across a range of testing:

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#### ASTM D1384-Corrosion Test for Engine Coolant in Glassware

Metals	Shell Heavy Duty Coolant Weight loss-mg/specimen	ASTM D6210 Limit Weight loss- mg/specimen
Copper	0,6	10 max
Solder	1,5	30 max
Brass	1,5	10 max
Steel	1,1	10 max
Cast Iron	2,0	10 max
Cast Aluminium	1,2	30 max

#### ASTM D2570- Simulated Service Corrosion Testing of Engine Coolants

Metals	Shell Heavy Duty Coolant Weight loss-mg/specimen	ASTM D6210 Limit Weight loss- mg/specimen
Copper	1,4	20 max
Solder	3,4	60 max
Brass	1,5	20 max
Steel	1,9	20 max
Cast Iron	0,8	20 max
Cast Aluminium	4,3	60 max

#### ASTM D4340 – Corrosion of Cast Aluminum Alloys in Engine Coolants under Heat Rejecting Conditions

Metals	Shell Heavy Duty Coolant Weight loss-mg/cm <sup>2</sup> /week	ASTM D6210 Limit Weight loss-mg/cm <sup>2</sup> /week
Aluminium	0,6	1 max

#### ASTM D2809 – Cavitation Corrosion and Erosion Characteristics of Aluminum Pumps with Engine Coolants

Metals	Shell Heavy Duty Coolant visual rating	ASTM D6210 Limit visual rating
Aluminium	10	8 min

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#### Compatibility

Although it is always recommended to use deionized or demineralized water to dilute antifreeze, **Shell Premium Heavy Duty Coolant N Concentrate** is formulated to be able to cope with different water qualities and is compatible with hard water.

**Shell Premium Heavy Duty Coolant N RTU Concentrate** is fully miscible with other coolants and can be safely mixed with them. However, as **Shell Premium Heavy Duty Coolant N Concentrate** employs an inhibitor type that is very different to that used in traditional mineral coolants it recommended to drain and flush cooling systems containing them before recharging with diluted **Shell Premium Heavy Duty Coolant N Concentrate**. Failure to do so could significantly lower the performance and longevity of the product.

#### Storage and Handling

**Shell Premium Heavy Duty Coolant N RTU Concentrate** has a shelf life of at least minimum four 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 Heavy Duty Coolant N RTU 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.

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.*

*This Technical Data Sheet shall be valid on issue date. Right to amend information provided in content of this Technical Data Sheet without prior notice is reserved.*