



TECHNICAL DATA SHEET (TDS)

Product name: SHELL ANTI-FREEZE LONGLIFE ULTIMATE PROTECTION concentrate

Formulation code: PA72F, PA720, PA729, PA76Z, CRX748

Supplier: Kemetyl Polska, Sp. z o.o.,
Al. Jeruzolimskie 146, 02-305 Warszawa,
Ph. +48 22 822 5390

1. Information on ingredients/ Application

Shell Anti-Freeze Longlife Ultimate Protection is an engine coolant concentrate (antifreeze) based on monoethylene glycol, containing no nitrites, amines, phosphates, borax, silicates and no other mineral additives, suitable for both petrol and diesel engines. Carefully chosen additives give it the following properties in aqueous mixtures:

- Increased life time, allowing less frequent maintenance, thanks to the corrosion inhibitors which are little consumed in the time.
- Thermal characteristics that permit effective engine cooling without boiling.
- Elimination of deposit problems caused by the use of hard water.
- Elimination of abrasives solids, which gives a better protection of the joints of the water pump.
- Improved anticorrosion protection of all metals and alloys used in the cooling system of modern vehicles, more over the aluminium.
- Protection against frost, depending on the concentration chosen.
- Excellent antifoaming characteristics.
- Meets most European and International Standards.

Shell Anti-Freeze Longlife Ultimate Protection complies with most of the European and International quality standards: ASTM D3306, ASTM D4656, ASTM D4985, AFNOR NF R15-601*, AS 2108, BS 6580: 2010, CUNA NC 956-16, SAE J 1034, UNE 26361-88, FFV Heft R443 , NATO S 759.

*Except for reserve alkalinity

It also meets the requirements of the following OEM specifications:

- Ford WSS-M97B44-D
- Mercedes-Benz 325.3
- Renault 41-01-001
- General Motors GM 6277M
- Volkswagen VAG TL 774 D & F
- MAN 324 SNF
- Mazda MEZ MN 121 D
- Volvo
- Claas
- Deutz 0199-99-115/6
- John Deere JDMH5
- Komatsu 07.892(2009)
- DAF 74002
- Fiat – Lancia 9,55523
- Jaguar CMR 8229



TECHNICAL DATA SHEET (TDS)

The distance between two cleanings is up to **240 000 km** or **5 years** whichever is the soonest.

Shell Anti-Freeze Longlife Ultimate Protection does not contain any traditional mineral corrosion inhibitors. The corrosion inhibitors “all organic” were selected to avoid problem with deposit accumulation and therefore a decrease in the heat transfer efficiency. They are very stable and do not precipitate, even when in contact with hard water.

Shell Anti-Freeze Longlife Ultimate is formulated to be able to cope with all water qualities and is compatible with hard water. It is compatible with all types of plastics and rubbers used in engine coolant systems.

The inhibitor package has been developed based upon latest organic acid technology to give long-term protection for all the metals presents in the modern engines, especially, aluminium and brass.

The table below compares corrosion, in mg/specimen, in a water/monoethylene glycol solution and in a water/ C2053 solution as described in ASTM D1384. The results demonstrate the effective corrosion inhibition:

	Water	Monoethylene glycol (33 vol% in H2O)	Shell LL Antifreeze Ultimate Protection (33 vol% in H2O)	ASTM D3306
Copper	49	6.5	0	10
Solder	137	345	-5	30
Brass	13	8	1	10
Steel	700	1474	1	10
Cast Iron	775	2472	1	10
Aluminium	121	30	1	30

2. Usage

Shell Anti-Freeze Longlife Ultimate Protection is a concentrated product and should be diluted for use with good quality water. We recommend that for optimum performance dilutions are made up with distilled or deionized water. The freeze protection afforded by the various dilutions is detailed in the table and charts below. Please note that the maximum freeze protection (approx. -70°C) is obtained at approx. 67 vol% coolant. Therefore mixtures above this level are not recommended as freeze protection will be reduced rather than enhanced.

In order to provide a satisfactory level of corrosion protection it is recommended to use at least 1:2 (33 vol%) of Shell Anti-Freeze Longlife Ultimate Protection in the coolant solution. In line with most car manufacturers it is recommend a 1:1 (50 vol%) solution for optimum corrosion protection.

Concentration (vol %)	vol % H2O	Max protection °C
25	75	-11
33	67	-20
50	50	-40
67	33	-70
75	25	-50



3. Miscibility

Shell Anti-Freeze Longlife Ultimate Protection is readily miscible with all engine coolants, however we advise not to mix organic acid based products with traditional mineral containing coolants since optimum performance & longevity of service can only be guaranteed by using Shell Anti-Freeze Longlife Ultimate Protection exclusively.

4. Physical and chemical properties

Chemical nature: Monoethylene glycol with inhibitors

Appearance	Clear liquid	
Colour	Pink/ purple	
Density at 20°C	1.114 g/cm ³	ASTM D 4052
pH (50% vol in Water)	8,2	ASTM D 1287
Boiling Point	187°C	
Flash point	124°C	
Viscosity at 20°C	25cP	
Vapour pressure at 20°C	0.08mbar	
Freezing Point -50% vol in Water	-38°C	
Reserve Alkalinity (ml HCl N/10)	6,2 ml	ASTM D 1121
Water Content	2,95 % wt	ASTM D 1123
Foaming Characteristics at 88 °C		ASTM D 1881
Height	35 ml	
Breaktime	1,5 seconds	

5. Recommendation

Shell Anti-Freeze Longlife Ultimate Protection is an extended life antifreeze which should be replaced every five years (or every 200 000 kms – 240 000 km) or as per car manufacturer's instruction. Original Equipment Manufacturers' (OEMs) recommendations should be followed when changing out cooling systems. Always disperse of used coolants in accordance with local state and federal regulations.

For optimum year round protection against freezing, boiling and corrosion we recommend a 1:1 dilution by volume with water. For maximum protection against freezing in extremely cold areas a 60 per cent solution can be used. Concentrations greater than 67 percent or less than 30 per cent are not recommended.

6. Storage

Shell Anti-Freeze Longlife Ultimate Protection has a shelf life of at least 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.

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.

The product is hygroscopic and, during long storage periods, a nitrogen blanket can be used to exclude atmospheric moisture. Alternatively, a desiccant unit can be installed on the tank vent line to prevent the ingress of moist air



7. HSE information.

The product is classified as harmful. No UN number.

For details, see Safety Data Sheet. A safety data sheet according to current regulations is available.

Date Issue:23.04.2020

The information contained in this specification is based on the present state of our knowledge and experience. Taking into account the diversity of factors that may affect the product during its use, these data do not relieve users of responsibility for carrying out their own tests and experiments; not also mean any legally binding assurances, or suitability for a particular purpose. The responsibility lies with the users of our product that all property rights and legal provisions are respected.