ANTIFREEZE FOR USE IN HIGH-POWERED VEHICLES

Heavy duty engines work in the maximum designed power range. They achieve high mileage and are more vulnerable to cavitation corrosion. The cooling system in modern heavy duty (HD) engines has to meet higher demands due to:

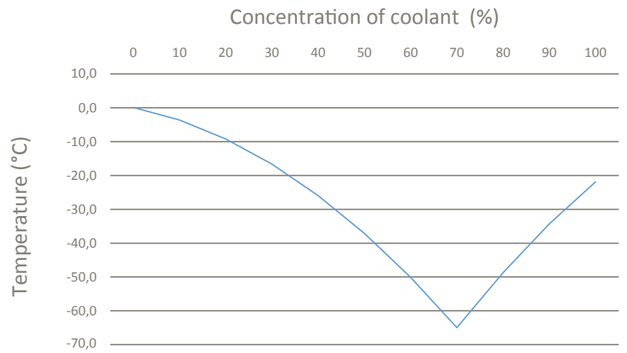
- higher working temperature and pressure
- higher fluid flow speed.

When working in extreme conditions, maintaining the high performance of vehicles and appliances is of fundamental importance for their productivity. This is why it is important to use antifreeze containing special additives appropriate for heavy duty engines.

Advantages of using HD type antifreeze:

- better anti-cavitation protection for metals
- better protection for aluminium and soldering alloys
- prevents precipitation of silicate gel and other sediments on metal alloysi
- helps prevent pump leaks

PROTECTION AGAINST FREEZING



Fluid dilution - protection against freezing for:
33% conc. coolant - protection up to -20°C; minimum concentration to maintain proper anti-corrosion protection;
40% conc. coolant - protection up to -26°C
50% conc. coolant - protection up to -37°C
68% conc. coolant - maximum protection against freezing: -69°C .
Larger coolant concentrations are not recommended.

More detailed information from the Distributor's Commercial departments or directly from Kemetyl Poland.
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SHELL PREMIUM ANTIFREEZE

- technologically advanced
- adapted to the latest solutions
- perfect protection for the engine and cooling system

Highest quality anti-freezes

WHY IS IT WORTH USING SHELL FLUIDS?

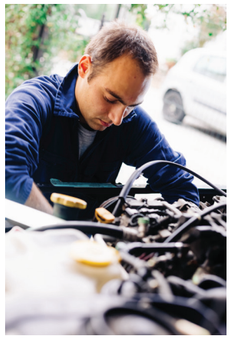
- the **top quality** of the fluids supported by many years of experience on the European market
- a **wide range** of products for different uses
- **certifications** from leading vehicle manufacturers
- they **meet the requirements** of most car manufacturers
- **mixable** with other antifreezes
- they **protect the engine** against overheating and freezing
- they **protect the cooling system** against corrosion, cavitation and formation of sediments thanks to an advanced inhibitor package
- they protect plastic and rubber elements

The sale of Shell fluids is supported by professional advice and training.

WHAT ANTIFREEZE IS APPROPRIATE FOR MY VEHICLE?

Damage to the cooling system is the most common cause of vehicle failure. To avoid this, you should select the right fluid for a given vehicle and type of application. You should always compare the specification of the fluid with the specification recommended in the vehicle documents. Shell's wide range of products includes fluids designed for:

- passenger cars
- commercial transport
- agricultural machines
- construction machines



Using the wrong antifreeze can result in costly damage.
A full 40% of lorry engine failures and 20% of failures in car engines can be blamed on damage to the cooling system. 7 out of 10 vehicles suffer from lime scale and rust. 60% of damage to cooling system pumps is caused by leakage in the system. The most common causes of damage to the cooling system are:

- the wrong fluid for a given application
- low quality fluid
- worn-our antifreeze fluid
- concentrated fluid working in the system

SHELL ANTIFREEZE FLUIDS - EXCELLENT PROTECTION FOR THE COOLING SYSTEM

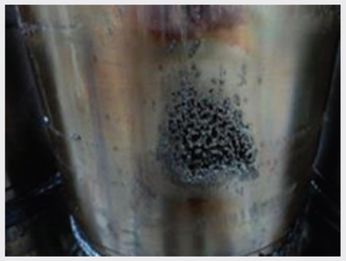
Shell antifreezes contain a special package of inhibitors which protect the system against:

- corrosion - by forming protective layers on metal surfaces
- cavitation (damage caused by a sudden local change in fluid concentration)
- sediment formation - by preventing sediments forming and attaching to surfaces

sediment after using low quality antifreeze

corroded radiator after using low quality antifreeze

radiator after using Shell Premium antifreeze



cavitation damage* caused by using low quality antifreeze

* Cavitation - this occurs in the cooling systems of combustion engines, at points with a high speed of fluid flow or strong vibrations. The shock waves formed can damage or destroy any kind of material. Cavitation is also the main source of noise.

Guide to antifreeze fluids

Product	Base Basic Extras	Replacement recommended	Colour	Basic norms	OEM approvals	Recommendation delivery vehicles (lorries), heavy equipment	Recommendations– passenger cars:
Shell Premium Antifreeze 774 C (G11)	MEG/ organic acids, silicates[1]	3-4 years	blue-green	ASTM D3306, ASTM D4656, **ASTM D4985,** SAE J1034	VW TL 774 C	Deutz, Ford ≤1998, Lada/Avtovaz, MAN 2003-11, MB 2002-10, Scania ≤2003, VW ≤1996, Volvo ≤2004 DF	BMW/Mini/Mitsubishi/Volvo (all years), Audi/SEAT/Škoda/Volkswagen ≤ 1996, Citroën/Peugeot 1995-1996, Ford, Jaguar & Land Rover/Porsche ≤ 1998, Chevrolet/Opel/Saab ≤ 2000, Lexus/Toyota ≤ 2002, Nissan ≤ 2005, Honda ≤ 2006, Hyundai/Kia ≤ 2007, Mercedes-Benz/Smart 2000-2013
Shell Premium Antifreeze Longlife 774 D-F (G12/G12+)	MEG/ organic acids[1'2]	6 years (32000h) or 650,000 km	pink/ yellow	ASTM D3306, ASTM, D4656, **ASTM D4985, ASTM D6210, TMC RP329, AA-52624**	MAN 324 typ SNF, DEUTZ DQC CB-14, VW TL 774 D-F, DAF 74002, MB 325.3	Agriculture/Construction, Case IH/Construction Equipment, Claas, Cummins, DAF/Leyland ≥2005, Deutz, , Ford ≥2003, Freighliner, Fendt, Jenbacher, Irisbus, Iveco/Bus/Astra ≥2013, Hitachi, Karosa, Kolbeco, Komatsu, John Deer, Liebherr, Massey Ferguson, New Holland, MAK, MAN, MAN B&W, MTU, MWM, MB Trucks/Evobus ≤2011, Mitsubishi Heavy Industry, Perkins, Renault Trucks, Scania 2004-07, SEM, Thermo King, Yanmar, Waukesha, Wärtsilä, Valtra, Van Hool, VW ≥1996, Volvo ≥2005	Alfa Romeo/Dacia/Fiat/Ford/Jaguar & Land Rover/Jeep/Lancia/Porsche/ Toyota ≥2003, Audi/SEAT/Škoda/VW 1997-2006, ADE, Abarth, Alstrom, Aston Martin, Cadillac, Chrystel, Chevrolet/Opel/Saturn/Saab ≥2001, Daihatsu, Detroit, Dodge, Foton, Holden, Honda ≥2007, Hyundai/Kia ≥2008, Isuzu, Jeep, Lotus, Mazda, Maserati, Nissan/Ferrari ≥2006, Proton, Renault ≥1995, Subaru, Suzuki, Volvo ≥2005
Shell Premium Antifreeze HD	MEG/ organic acids, silicates, nitrites, molybdates[3]		dark red (crimson)	**A STM D4985, ASTM D6210, TMC RP329, AA-52624**		Suitable for work in heavy duty equipment and vehicles. Caterpillar	
Shell Premium Antifreeze G (G11)	MEG/ organic acids, silicates[1]	3-4 years	niebiesko-zielony	ASTM D3306, ASTM D4985, SAE J1034		ATLAS, Deutz, Fendt, Ford ≥ 1997, Liebherr, MAN < 11.2011, Mercedes-Benz < 9.2011, MTU, Sisu, Van Hool, VW 1975-96, Vauxhall < 2000, Volvo Truck < 2005	Alfa Romeo/Lancia 1976-2005, Audi 1981-1996, Bentley 1980-2005, BMW ≥ 1975, Chrysler 1985-2007, Ferrari 1979-2005, Fiat 1982-2005, Ford ≥ 1997, Jaguar 1986-1999, Lada/Mahindra/Morgan (all years), Range Rover V8 and Diesel 1998-2005, Lotus 1980-1999, Mercedes 1976-2014, MINI (petrol engine) ≥ 2001, Carisma 1996-2004, Colt 2004-2007, Opel/Saab 1975-2000, Porsche (oprócz 911) ≥ 2010, Rolls-Royce ≥ 1998, Seat 1985-1996, Skoda 1989-1998, Smart 1998-2013, Tesla ≥ 2013, Volkswagen 1975-1996
Shell Premium Antifreeze Longlife G (G12/G12+)	MEG/ organic acids[1]	min. 5 years	violet	ASTM D3306, ASTM D4985, SAE J1034		Daewoo, DAF, Mitsubishi Fuso, Nissan, Renault, GINAF, CNH > 1.2014	Alfa Romeo/Ferrari/Dacia/Fiat/Lancia ≥ 2005, Audi 1996-2008, Bentley 2005-2008, Chrystel ≥ 2008, Citroën/Peugeot ≥ 1993, Daihatsu ≥ 1979, Honda ≥ 1983, Hyundai/MG Rover/Nissan/Mitsubishi ≥ 1982, Jaguar ≥ 1999, KIA ≥ 1991, Land Rover Freelander, Discovery, Defender, Range Rover/Ford ≥ 1998, Lexus ≥ 1994, Lotus ≥ 2000, Mazda/Subaru ≥ 1977, Diesel ≥ 2007, Porsche 1996-2009, Renault ≥ 1985, Seat 1997-2007, Skoda 1998-2008, Suzuki ≥ 1981, Toyota ≥ 1978, Volkswagen 1997-2008
Shell Anti-Freeze Longlife	MEG/ organic acids[1]	min. 5 lat	pink-violet	ASTM D3306			
Shell Anti-Freeze	MEG/ silicates[1]	2 years	blue dark blue	ASTM D3306			

Notes: 1- NAP free - the following chemical compounds have been eliminated: nitrates (N), amines (A), phosphates (P)
2- the following chemical compounds have been eliminated: silicates, borates, chromates, nitrates
3- the following chemical compounds have been eliminated: phosphates (P)