DEX-COOL® COOLANT

FOR MOST MAKES & MODELS

DESCRIPTION

ACDelco DEX-COOL® Extended Life Coolant - mixed with the appropriate amount of water - is used as a cooling and heat transferring fluid in combustion engines. Excessive heat is transferred via the fluid to the radiator where the mixture is cooled by means of airflow. ACDelco DEX-COOL® is an ethylene glycol based fluid that provides maintenance-free protection against freezing and boiling but also against corrosion. Extended coolant life, often for the whole life of the engine or vehicle, is obtained through the use of virtually non-depleting corrosion inhibitors.

FEATURES & BENEFITS

ACDelco DEX-COOL® offers following benefits to the user:

- Extended life by synergistic combination
- Improved heat transfer leaves more flexibility to engine design
- Reduces repairs to thermostat, radiator and water pump
- Reliability depletion free and stable inhibitor
- Improved hard water stability absence of silicates and phosphates
- Save time and money maintenance-free coolant
- Suitable for mixed fleets 1 coolant for automotive & heavy duty application
- Environmentally friendly by using carboxylic additives

Based on patented silicate-free aliphatic additive technology, ACDelco DEX-COOL® provides long-life corrosion protection for all engine metals, including aluminium and ferrous alloys. During extensive fleet testing, the synergistic combination of mono- and di-carboxylates present in this coolant, has proven to provide protection for at least 650,000 km (ca. 8,000 hours) in truck & bus-application or 250,000 km (ca. 2,000 hours) for passenger cars or 32,000 hours (or 6 years) for stationary engines.

It is recommended to change the coolant every five years or when above mileages or operating times are reached, whichever comes first. ACDelco DEX-COOL® provides long-life protection against all forms of corrosion by the use of optimised and patented organic corrosion inhibitors. Excellent and lasting high temperature corrosion protection is provided for the aluminium heat transfer surfaces contained in modern engines. The inhibitor package of ACDelco DEX-COOL® offers excellent cavitation protection even without using nitrite or nitrite-based supplemental coolant additives (SCA's).

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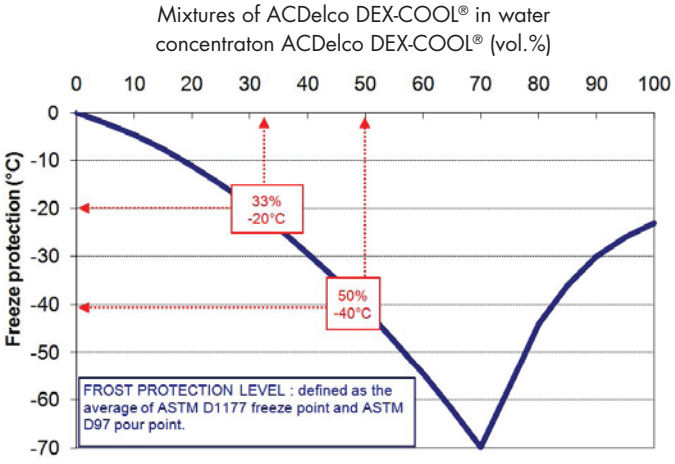
APPLICATION

ACDelco DEX-COOL® provides long-life frost and corrosion protection. To ensure good corrosion protection, it is recommended to use at least 33 vol.% of ACDelco DEX-COOL® in the coolant solution. This provides frost protection to -20 °C. Typical mixtures in colder climates are 50/50, offering frost protection down to -40 °C. Mixtures with more than 70 vol.% ACDelco DEX-COOL® in water are not recommended. The maximum frost protection (about -69 °C) is obtained at 68 vol.% ACDelco DEX-COOL®.

ACDelco DEX-COOL® may be used with confidence in engines manufactured from cast iron, aluminium or combinations of the two metals, and in cooling systems made of aluminium or copper alloys. ACDelco DEX-COOL® is particularly recommended for hi-tech engines, where high temperature aluminium protection is important.



COMPATIBILITY & MIXABILITY

ACDelco DEX-COOL® is compatible with most other coolants based on ethylene glycol. Exclusive use of ACDelco DEX-COOL® is however recommended for optimum corrosion protection and sludge control.

For optimal performance and controlled quality, we recommend the use of deionised or distilled water to prepare the ready-to-use dilutions although lab testing has shown that acceptable corrosion results are still obtained with water of 20°dH, containing up to 500 ppm chlorides or 500 ppm sulphates.

RECOMMENDED BY ACDELCO FOR USE IN APPLICATIONS REQUIRING:

- Ford specification WSS-M97B44-D
- Mercedes-Benz specification 325.3
- General Motors specification GM 6277M
- MAN specification 324 type SNF
- Volkswagen specification TL 774F

Even though a formal approval has not been obtained from some OEMs, ACDelco DEX-COOL® is suitable for use as antifreeze / coolant in any combustion engine. Refer to the OEM's manual for recommended coolant type.

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FLEET TESTS

ACDelco DEX-COOL® has been extensively fleet tested for over 100,000,000 km! 540 vehicles, both heavy duty and automotive, have been closely monitored and showed:

- Limited depletion rates of the corrosion inhibitors: less than 10 %
- Superior aluminium protection
- Average pump life increased by 50 %
- Excellent cavitation protection even without the addition of nitrite
- No compatibility problems with good quality traditional coolants
- No compatibility problems with seals, hoses and plastic components

AVAILABILITY

ACDelco DEX-COOL® is available in various pack options. Sizes as follows:

- PN 19375292 Dex Cool 1 Litre
- PN 19375293 Dex Cool 5 Litre
- PN 19375294 Dex Cool 20 Litre
- PN 19284968 Dex Cool 205 Litre

Please contact your local ACDelco Parts Stockist on availability of pack sizes to suit your application.

STORAGE REQUIREMENTS

The product should be stored above -20 °C and preferably at ambient temperatures. Periods of exposure to temperatures above 35 °C should be minimised.
Further, it is strongly advised not to expose the coolant in translucent packages to direct sunlight because this can degrade the colour dyes present in the coolant, and result in fading of the colour or discoloration over time. This reaction can be accelerated if coupled with high ambient temperatures. To avoid this issue it is therefore advisable to store coolant filled in translucent packages indoors. ACDelco DEX-COOL® can be stored for minimum 8 years in unopened containers without any effect on the product quality or performance. It is strongly recommended to use new containers and not recycled ones
As with any antifreeze coolant, the use of galvanised steel is not recommended for pipes or any other part of the storage/mixing installation.

STORAGE REQUIREMENTS

For Toxicity and Safety Data we refer to the Safety Data Sheet. The information and advice given should be observed and due attention should be given to the precautions necessary for handling chemicals. This product is available to download from our website.

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APPENDIX - TECHNICAL INFORMATION

DESCRIPTION	ACDelco DEX-COOL®	ASTM 3306 requirements	METHOD
Ethylene glycol	93 % w/w glycol	Base	
Other glycols	0.5 % max.	5 % w/w max.	
Inhibitor content	5 % w/w		
Water content	5 % w/w max	5 % w/w max	ASTM D1123
Ash content	1.1 % w/w typ.	5 % w/w max	ASTM D1119
Nitrite, amine, phosphate, borate, silicate	Nil		
Specific gravity, 15°C	1.116 typ.	1.110 to 1.145	ASTM D5931
Specific gravity, 20°C	1.113 typ.		ASTM D5931
Equilibrium boiling point	180°C typ.	> 163°C	ASTM D1120
Reserve alkalinity (pH 5.5)	6.2 typ.	Report	ASTM D1121
pH, 20°C	8.6 typ.		ASTM D1287
Refractive Index, 20°C	1.430 typ.		ASTM D1218

DESCRIPTION	50% Dilution	40% Dilution	33% Dilution	ASTM 3306	METHOD
pH	8.6	8.4	8.3	7.5 to 11.0	ASTM D1287
Foaming Properties at 25°C Break Time	50ml typ. 5 sec typ.	-	-		ASTM D1881
Foaming Properties at 88°C Break Time	50ml typ. 5 sec typ.	-	50ml typ. 5 sec typ.	150ml max.	ASTM D1881
Initial crystallisation	< -30°C	< -24°C	< -18°C	< -37°C	ASTM D1177
Freezing protection	-40°C typ.	-27°C typ.	-20°C typ.		
Specific gravity, 20°C	1.068 typ.	1.056 typ.	1.053 typ.		ASTM D5931
Reserve alkalinity (pH 5.5)	3.0 typ.	2.4 typ.	2.1 typ.		ASTM D1121
Refractive Index, 20°C	1.385°C typ.	-	1.369 typ.		ASTM D1218
Equilibrium boiling point	108°C typ.	-	104°C typ.		ASTM D1120
Effect on non-metals	No effect	No effect	No effect		GME60 255
Staining characteristics	-	-	No effect	No effect	ASTM D 1882
Hard water stability	No precipitate	-	-		VW PV 1426

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ASTM D1384 GLASSWARE CORROSION TESTS

WEIGHT LOSS IN MG/COUPON[1]						
Product	**Brass**	**Copper**	**Solder**	**Steel**	**Cast Iron**	**Aluminium**
ASTM D3306 (max)	10	10	30	10	10	30
ACDelco DEX-COOL®	1.6	1.9	0.1	-0.5	-1.4	4.6

[1]Weight loss AFTER chemical cleaning acc. to ASTM procedure. Weight gain is indicated by a - sign.

ASTM D4340 ALUMINIUM HEAT TRANSFER TEST

ASTM D4340 is almost identical to BS 5117:2.6

Product	WEIGHT LOSS IN MG/CM2/WEEK[1]
ASTM D3306 (max)	1.0
ACDelco DEX-COOL®	<0.2

[1]Weight loss AFTER chemical cleaning acc. to ASTM procedure. Weight gain is indicated by a - sign.

MODIFIED MTU HIGH TEMPERATURE CORROSION TEST (2000 W)

WEIGHT LOSS IN MG/COUPON[2]						
	Cast Iron			**Aluminium**		
Test Duration (Hrs)	48	69	116	[2]48	69	116
Reference Coolant[3]						
Hot Coupon	-30.0	-13.1	4.3	-18.2	284.2	-
Top Coupon	-20	1.6	5.7	6.2	152.2	-
ACDelco DEX-COOL®						
Hot Coupon	-0.2	-2.1	-0.5	20.2	24.6	35.1
Top Coupon	3.4	0.1	1.9	20.1	42.1	18.5

[2] Weight loss AFTER chemical cleaning acc. to (shortened) MTU procedure. Weight gain is indicated by a - sign.
[3] Reference coolant is a conventional, high quality, silicate-based coolant

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AGING TEST

To emphasise the corrosion protection offered by ACDelco DEX-COOL®, the aging test is conducted under more severe conditions compared to those commonly used in the industry.

Test Conditions	Typical Industry	ACDelco DEX-COOL®
Test duration	169 h	504 h
Fluid content	5.0L	6.0L
Pressure	1.5 bar	2.5 bar
Flow	3.0 L/min	3.5 L/min
Heat Imput	5500 W	5000 W
Temperature in heating vessel	95 °C	115°C
Temperature in cooling vessel	75 °C	95°C
Concentration of coolant in water	40 vol. %	20 vol. %

Weight loss in g/m² (using Arteco test parameters) [1]							
	Al[2]	AlMn	Cast Iron	Steel	Cu	CuZn	Solder CB
Reference Coolant[3]							
After Initial Cleaning	82.10	64.02	-2.19	-1.68	3.62	2.90	21.45
After Final Cleaning	125.01	94.33	-0.36	0.11	4.99	5.66	25.83
ACDelco DEX-COOL®							
After Initial Cleaning	9.77	0.71	-0.07	0.17	1.44	1.62	0.43
After Final Cleaning	23.58	4.14	0.0	0.24	2.63	2.53	0.55

[1] Weight loss AFTER chemical cleaning acc. to (shortened) MTU procedure. Weight gain is indicated by a - sign.
[2] Aluminium SAE 329.
[3] Reference coolant is conventional, high quality, silicate-based coolant.