



Technical Circular

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Engine coolant for DEUTZ compact engines

The 4th replacement is made on account of:

- revision
- Update of product recommendation

General information



All data correspond with the latest state of knowledge.

They do not release the owner from his own obligations for caution due to the possible influences when using these products.

The cooling system protection agent must be used exclusively for the named purpose (intended use), any other use above and beyond this is considered as improper use.

The user will be liable exclusively for damages resulting from this. Respective, country-specific legal conditions must be observed by the user on his own responsibility.

Please address inquiries to your service partner.

In liquid-cooled engines the coolant must be prepared by mixing a cooling system protective agent with the fresh water and testing it within the given maintenance intervals.

This prevents damage due to

- corrosion
- cavitation
- freezing
- overheating
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Note:
The part numbers indicated in this document are not subject to updating.
Binding for the identification of spare parts is exclusively the spare parts documentation.

You will find products which have been approved as cooling system protection agents for liquid-cooled DEUTZ engines in the appendix "Product recommendation".



Damages can be expected when using products which have not been released and failing to observe the maintenance intervals as well as the quality of fresh water. These damages are not covered by the DEUTZ AG guarantee.

Fresh water quality

The right water quality is important for conditioning the coolant. Clear, clean water within the following analysis values should always be used:

Analysis values of the fresh water

pH value at 20 °C	6.5 to 8.5
Chloride-ion content	max. 100 mg/l
Sulphate-ion content	max. 100 mg/l
Total hardness (degree of German hardness)	3 to 20 °dGH
corresponds to earth alkali ion content (Ca ²⁺ + Mg ²⁺)	0.54 to 3.56 mmol/l
Carbonate hardness percentage of the total hardness	min. 3 °d
corresponds to content of CaCO ₃	max. 53.4 mg/l



Never use sea water, river or lake water, brackish water or industrial waste water for conditioning the coolant.

Specifications of the water quality are made by the local water board.

If the analysis values of the fresh water are unknown, these must be determined by means of a water analysis.

The water must be conditioned if it deviates from the analysis values.

- **pH value too low:**
 - Add diluted caustic or potassium soda. It is advisable to make small test mixtures
- **Total hardness or carbonate hardness too low:**
 - Remedy by mixing with harder water
Harder water is usually available in the form of drinking water (municipal water).
- **Total hardness or chloride and/or sulphate too high**
 - Remedy by mixing with softened water
Softened water is distilled water, pH-neutral condensation or water treated with ion exchangers.

A new analysis should be made after conditioning the fresh water.



Cooling system corrosion protection agent

The coolant for liquid-cooled DEUTZ engines is prepared by adding an antifreeze with corrosion protection inhibitors based on ethylene glycol.

The best results are achieved with the **DEUTZ cooling system protective agent**, see appendix Product recommendation.

This cooling system protective agent is adapted to the materials in DEUTZ engines and is subject to continuous monitoring. The agent must be ordered from the DEUTZ organisation.

If for some important reason, for example delivery restrictions abroad, the DEUTZ cooling system protective agent is not available, alternative products released by DEUTZ may be used as alternatives in exceptional cases. These products are divided into product groups and can be found in the appendix Product recommendation.

Note that products in the same product group can be mixed. Products in different product groups may not be mixed. The entire cooling system must then be cleaned before changing the product.

To ensure adequate corrosion protection the cooling system protective agent must be used all year round and may not drop below or exceed the following concentration.

Mixing ratio			
Cooling system protective agent	Fresh water	Cold protection up to	
min. 35%	65%	-22°C	
40%	60%	-28°C	
max. 45%	55%	-35°C	



When using the cooling system protective agent the heat transfer value of the coolant is reduced. Make sure that the cooling system is designed for this. DEUTZ cooling systems are designed for a percentage of 45% cooling system protective agent (up to -35°C).

At temperatures below -35 °C, please contact your responsible DEUTZ partner.

Specifications of the cooling system

- The use of a chemical corrosion protection agent for DEUTZ engines is possible in justified cases, talk to your responsible DEUTZ Service.



It is prohibited to use corrosion protection oils as cooling system protective agents for DEUTZ engines.

- The coolant must be tested constantly and maintained at regular intervals. Monitoring includes inspection of the coolant level, the contamination of the coolant and checking of the cooling system protection concentration, e.g. with a refractometer, see the maintenance schedule in the operation manual.

- The coolant must be renewed and the entire cooling system cleaned if necessary, see TR 0199-99-1116
 - in case of heavy turbidity due to corrosion residue or other floating particles,
 - in case of penetration by lubricating oil,
 - when changing to a different product group, see appendix
 - according to maintenance plan of the operation manual, at the latest every 2 years.
- Coolant may not be poured down the drain. It must be disposed of properly according to legal regulations and specifications of the supplier.

Disposal of the DEUTZ cooling system protective agent

The DEUTZ cooling system protective agent TN 0101 1490, 0101 6416 and 1221 1500 contains monoethylene glycol (1,2-ethandiol). Used coolant must be treated as waste. The owner of the waste is responsible for this himself (cf. KrW-/AbfG § 5 "Basic Obligations of the Cycle Economy").

Used coolant (mixture of cooling system protective agent and water)

The waste code no. for used coolant

Waste code no.: (Europ. Union)	070101	according to EWC directive, valid from 01.01.1999 (EWC = European Waste Catalogue)
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Used coolant is listed in the list of substances hazardous to water with the classification (WGK 0) "not generally hazardous to water".

Identification according to the hazardous substances directive: hazardous to health (Xn)

In accordance with the classification as waste with waste code no. 070101, used coolant must be classified as a waste requiring special monitoring for utilisation from 01.01.1999.

Recording the utilisation of used coolant is governed by the recording directive (usually proof of disposal, accompanying certification). Any national law obligations must be examined regionally from case to case.

The respective valid regulations must be observed.

Pure cooling system protective agent.

Pure, undiluted cooling system protective agent must be disposed of in a suitable, approved waste incineration plant. Please contact an approved disposal company. Dilution with water for the purpose of disposal is prohibited.

Service Information

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Appendix - Product Recommendation Cooling System Protective Agents

Product group	Supplier	Product name	Observations Distribution area
A	DEUTZ AG	Cooling system protective agent TN 0101 1490	5 litre canister
		Cooling system protective agent TN 0101 6416	20 litre canister
		Cooling system protective agent TN 1221 1500	210 litre barrel
	ARAL	Antifreeze Extra	
	AVIA	Antifreeze APN	
	BASF	Glystantin G48 Protect Plus	
	BUCHER	Motorex Antifreeze Protect Plus G48	Switzerland
	ESSO	ESSO Antifreeze Extra	
	FUCHS EUROPE	FRICIFIN	
	INA Industria	INA Antifriz AL Super	
	Mobil	Mobil Antifreeze Extra	
	OMV	OMV coolant plus	
	Shell	GlycoShell	
	Castrol	Castrol Antifreeze NF	
	TOTAL	Glacelf MDX	
	Unico Ltd	Shell Triguard PM *	Africa
		Engmans Ready to Use Antifreeze and Coolant *	Africa
	VALVOLINE	G48 Antifreeze	
	Veedol	Veedol Antifreeze NF	
	BP	BP anti-frost Code no. X 2270 A	
Hunold	Cooler protection ANF		
INEOS	Napgel C2270/1		
B	AGIP	Antifreeze special	
	ARTECO / Texaco	Havoline XLC	Europe, South America
	CALTEX	Havoline XLC	Asia, Australia
	Chevron Texaco	Chevron Extended Life Coolant	
	Orvema b.v.	Orvema Protex LL	Netherlands
	TOTAL	Glacelf Auto Supra	
		Total Organifreeze	
	Texaco USA	Havoline Extended Life Coolant (HELAC)	USA, without nitrite and molybdate
Extended Life Coolant (TELC)		USA, with nitrite	

* The product is a mixture of 50% antifreeze and 50% water, note when filling into the engine.