

Enclosure 1 to SI 17 01 96 (140), edition 02/2019

Pure water is unsuitable as a coolant not just because of the lack of antifreeze properties. Good functioning of the cooling system is only guaranteed once a suitable antifreeze and corrosion inhibitor, or antifreeze for short, has been added.

The cooling systems of BMW vehicles must only be filled with the anti-freeze and corrosion inhibitors approved for the purpose. The filling and maintenance instructions to be found in the Repair Instructions and operating instructions must be observed.

Antifreeze agents must meet the following requirements:

- They must guarantee operability of the cooling system in winter (anti-freezing protection by lowering the freezing point) and in summer (prevent boiling and boiling over of the coolant).
- They must protect metal parts that come into contact with the coolant (grey cast iron, steel, aluminium alloy, brass, copper and solder) against corrosion and cavitation.
- They must be neutral with respect to rubber parts and plastic parts in the coolant circuit.
- They must guarantee the consistency of the above-mentioned quality criteria.

To create these coolant properties, the antifreeze and corrosion inhibitors must be mixed to the correct ratio with water.

Prescribed mixture for coolant:

50 % antifreeze for antifreeze protection up to -40 °C

The original coolant mixture for the initial filling at the factory has this antifreeze-to-water ratio.

If the proportion of antifreeze is less than 40 % to -29 °C (i.e. the water content is higher than 60 %), not only the degree of protection against freezing, but also corrosion protection is reduced. When the water content is too high, this can lead to premature excess temperature in very hot weather or hot climates and as a consequence lead to coolant being ejected out of the system and damage to the engine through excess temperature.

This means that it is essential that an antifreeze and corrosion inhibitor is added even in the tropics.

Too high a concentration, more than 55 % down to -47°C, leads to deterioration of the cooling properties (heat transfer) and protection against freezing-up is modified in the opposite direction, i.e. it also deteriorates.

The amounts of screenwash required for protection against freezing are stated (percentage values) on the containers.

Minimum requirements for water quality:

- Appearance: colourless, clear
- Sediment, without suspended matter
- pH value: 6.5-8.0
- Total hardness, max.: 20° dH (German hardness grade) or in new unit of measurement:
- Total hardness, max.: 3.6 mmol Ca²⁺/ltr.
- Chloride content: max. 100 mg/l
- Sulphate content: max. 100 mg/l

Tap water with drinking water quality usually fulfils these requirements. Local water utilities can provide information about the quality of the water they supply. If necessary, the water must be treated (e.g. softened) or distilled water must be used.

The quality of regenerated sea water (as found in the Gulf states) is inadequate!

Enclosure 2 to SI 17 01 96 (140), edition 02/2019

Change interval, coolant change and check

Regular testing of the coolant composition as part of inspections I and II. Due to decreasing corrosion protective effect the change interval of 4 years (3 years for M-power vehicles) has to be maintained. Check the coolant antifreeze concentration before the start of the cold season. It is also necessary to check its composition after having topped up coolant. When adjusting and checking the concentration, a areometer spindle is required (antifreeze tester). Mixing the approved substances with each other is allowed.

Technical progress has made it possible that coolant changes are not required for the vehicles specified below:

- All CBS vehicles (including M vehicles) as of production date 9/2003
- Service Interval Indicator vehicles:
 - All Service Interval Indicator vehicles with petrol engines (including M vehicles) as of production date 03/2003
 - E85 from market introduction
 - All Service Interval Indicator vehicles with diesel engine as of production date 09/2003
 - RR4, RR5, RR6 and all other new model start-ups

Disposal

For the disposal of the coolant, the safety data sheets of the manufacturers for antifreeze and corrosion inhibitors or the legal regulations of the individual countries must be observed.

Enclosure 3 of SI 17 01 96 (140), 04/2019

Following coolants are used in vehicles of the BMW Group

Coolant	Characteristic: Colour	Use in the service
BMW antifreeze and corrosion inhibitorG30	magenta	
BMW antifreeze and corrosion inhibitorG48	blue	
BMW antifreeze and corrosion inhibitor HT-12	magenta	
BMW antifreeze and corrosion inhibitor HT-12	green	
i3 Coolant	blue	

Coolant use

Vehicle	BMW antifreeze and corrosion inhibitorG30	BMW antifreeze and corrosion inhibitorG48	BMW antifreeze and corrosion inhibitor HT-12 (magenta)	BMW antifreeze and corrosion inhibitor HT-12 (green)	i3 Coolant
MINI R55, R56; diesel engine W16	X				
F15, F16, F26, production to 30.06.2018		X			
G01, G02, G05, G07, production until 30.06.2018		X			
F06, F12, F34, F36, F85, F86, F90, production until 31.07.2018		X			
G11, G12, G14, G15, G30, G31, G32, production until 31.07.2018		X			
G29, production until 30.11.2018		X			
F20, F21, F22, F23, F30, F31, F32, F33, F35, F39, F45, F46, F48, F80, F82, F83, F87, Production until 31.12.2018		X			
G20, production until 31.12.2018		X			
I01 (coolant circuit for the drive components), I12, I15, production until 31.12.2018		X			

RR04, RR5, RR6, RR11, RR12, RR31, production until 31.12.2018		X			
F49, F52, production until 31.01.2019		X			
G08, G38, production until 31.01.2019		X			
F15, F16, F26, production from 01.07.2018			X ⁽¹⁾	X ⁽¹⁾	
G01, G02, G05, G07, production from 01.07.2018			X ⁽¹⁾	X ⁽¹⁾	
F06, F12, F34, F36, F85, F86, F90, production from 01.08.2018			X ⁽¹⁾	X ⁽¹⁾	
G11, G12, G14, G15, G30, G31, G32, production from 01.08.2018			X ⁽¹⁾	X ⁽¹⁾	
G29, production from 01.12.2018			X ⁽¹⁾	X ⁽¹⁾	
F20, F21, F22, F23, F30, F31, F32, F33, F35, F39, F45, F46, F48, F80, F82, F83, F87, Production from 01.01.2019			X ⁽¹⁾	X ⁽¹⁾	
G20, production from 01.01.2019			X ⁽¹⁾	X ⁽¹⁾	
I01 (coolant circuit for the drive components), I12, I15, production from 01.01.2019			X ⁽¹⁾	X ⁽¹⁾	
RR04, RR5, RR6, RR11, RR12, RR31, production from 01.01.2019			X ⁽¹⁾	X ⁽¹⁾	
F49, F52, production from 01.02.2019			X ⁽¹⁾	X ⁽¹⁾	
G08, G38, production from 01.02.2019			X ⁽¹⁾	X ⁽¹⁾	
F40, F44, F97, F98, starting with SOP			X ⁽¹⁾	X ⁽¹⁾	
G21, G28, starting with SOP			X ⁽¹⁾	X ⁽¹⁾	
i01 heater circuit					X
Other vehicles of the BMW, BMWi, MINI and Rolls-Royce models		X			

More information

Note:

In principle, a vehicle has to be filled with the coolant that it was delivered with ex-works.



Risk of damage!

Coolants must not be mixed with one another arbitrarily.

The coolant may gel and that may lead to engine damage if mixed.

Following table shows the safe miscibility of the coolants from a technical point of view:

	BMW antifreeze and corrosion inhibitor HT-12 (green)	BMW antifreeze and corrosion inhibitor HT-12 (magenta)	BMW antifreeze and corrosion inhibitor G30	BMW antifreeze and corrosion inhibitor G48	i3 Coolant
BMW antifreeze and corrosion inhibitor HT-12 (green)	X	X		X	
BMW antifreeze and corrosion inhibitor HT-12 (magenta)	X	X		X	
BMW antifreeze and corrosion inhibitor G30			X		
BMW antifreeze and corrosion inhibitor G48	X	X		X	
i3 Coolant					X

Enclosure 4 to SI 17 01 96 (140), edition 02/2019

With the protection of the environment in mind, BMW has been filling all of its vehicles with nitrite- and amino-free antifreeze and corrosion inhibitors since mid-1986 as standard practice.

The use of antifreeze and corrosion inhibitors that contain nitrites and amines is no longer permissible.

Note:

For an overview about the use of coolant, see technically suitable antifreeze and corrosion inhibitors.

The mixture ratio with water is 1:1. This provides antifreeze protection down to -40°C.

The BMW antifreeze and corrosion inhibitor G48 is blue in colour.

Trade name	BMW part number DEU	BMW part number worldwide (except for DEU, JPN, CHN, AUS, FIN, NOR, SWE, DNK, FRO)	BMW part number JPN	BMW part number AUS	BMW part number CHN	BMW part number FIN, NOR, SWE, DNK, FRO	Container size
BMW antifreeze and corrosion inhibitor	83 19 2 211 191	83 51 2 355 290	83 19 2 211 194	83 19 2 211 913	83 19 2 211 195	83 19 2 211 914	1.5-litre can
BMW antifreeze and corrosion inhibitor	83 19 2 304 068	83 51 2 355 291					60-litre barrel
BMW antifreeze and corrosion inhibitor	83 19 2 304 069	83 51 2 355 293					205-litre barrel

Trade name	Manufacturer/Supplier
AD Original AD 48	AD Parts, S.L.
AlpineC48	Mitan Mineralöl GmbH
AWM G11	Tosol-Sintez
Aral Antifreeze Extra	Aral AG
AVIA Antifreeze APN	AVIA Mineralöl AG
BMW Antifreeze	BMW AG
Radiocool NF	Castrol International

MAINTAIN FRICOFIN

Engmans Super Antifreeze and Coolant

GLYSANTIN® G48®

Kuttenkeuler Antifreeze ANF KK48

Antifreeze HD G11 K

Glycostar ST48

Zerex G48®

Fuchs Europe Schmierstoffe GmbH

Unico Manufacturing

BASF series introduction

Kuttenkeuler GmbH

Lukoil

Kuttenkeuler GmbH

Valvoline

Enclosure 5 to SI 17 01 96 (140), edition 02/2019

BMW antifreeze and corrosion inhibitor HT-12 was introduced for the first time starting 03/2018 exclusively as part of Technical Campaigns for selected BMW vehicles.

Starting 07/2018, a few series will be initially filled with the BMW antifreeze and corrosion inhibitor HT-12 ex works.

BMW antifreeze and corrosion inhibitor HT-12 is available in **green** colour as well as in **magenta** colour. **Green** BMW antifreeze and corrosion inhibitor HT-12 is used in the factories for initial filling. The BMW antifreeze and corrosion inhibitor HT-12 for the service department in the Retailer Organisation was **magenta in colour** for a short time. This **magenta-coloured** BMW antifreeze and corrosion inhibitor HT-12 is now eliminated.

Starting 11/2018, **green** BMW antifreeze and corrosion inhibitor HT-12 will be available to the service department in the Retailer Organisation.

Note:

For an overview about the use of coolant, see technically suitable antifreeze and corrosion inhibitors.

The mixture ratio with water is 1:1. This provides antifreeze protection down to -40°C.

<i>Trade name</i>	<i>BMW global part number</i>	<i>Container size</i>	<i>Colour</i>	<i>Note</i>
BMW antifreeze and corrosion inhibitor HT-12	83 19 2 458 358	5-litre canister	magenta	- omitted -
BMW antifreeze and corrosion inhibitor HT-12	83 19 2 466 484	5-litre canister	green	- New -

Enclosure 6 of SI 64 09 96 (154), 02/2019

Lifetime coolant i3 was used for the first time from 09/2013 onwards in the BMW i01 **exclusively for the heater circuit**.

Risk of mixing up

The silicate free coolant i3 is dyed blue.

Do not use coolant i3 for the cooling circuits of the electrical machine or the range extender!

Do not use coolant for cooling circuits of the electrical machine or the range extender in the heater circuit!

Do not use other coolants, on account of the risk of flocculation and the associated clogging of the heat exchanger!

Note:

For an overview about the use of coolant, see technically suitable antifreeze and corrosion inhibitors.

Coolant i3 must not be used for all equipment specifications.

Mixture ratio with water is 1:1. This provides antifreeze protection down to -40 °C.

Trade name BMW part number Container size

Coolant i3	83 51 2 355 296	1000 ml
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Enclosure 7 to SI 17 01 96 (140), edition 02/2019

Caution!

The lifetime coolant Glysantin G30-91 is absolutely necessary for the MINI R56 diesel engine W16. Other coolant additives cause engine damage.

Glysantin G30-91 may not be used in the context of a Technical Campaign for BMW vehicles.

Risk of mixing up

The silicate-free coolant Glysantin G30-91 is identified by a magenta-coloured label.

The BMW antifreeze and corrosion inhibitor G30-91 is magenta in colour.

Note:

For an overview about the use of coolant, see technically suitable antifreeze and corrosion inhibitors.

The mixture ratio with water is 1:1. This provides antifreeze protection down to -40°C.

Trade name	BMW part number DEU	BMW part number worldwide (except for DEU, JPN, CHN, AUS, FIN, NOR, SWE, DNK, FRO)	Container size
BMW antifreeze and corrosion inhibitor	83 19 2 211 662	83 51 2 355 294	1.5-litre can
G30-91			
BMW antifreeze and corrosion inhibitor	83 19 2 304 076	83 51 2 355 295	60-litre barrel
G30-91			

Enclosure 8 to SI 17 01 96 (140), edition 07.1999

Coolant additives that are, for example, supposed to provide additional corrosion protection or seal against minor leakage are rejected by BMW.

Due to the poor heat transfer from the cylinder head to the coolant *there can be heat accumulation and hot spots*, which in turn can lead to *cylinder head gaskets blowing out or the cylinder head tearing*.

We will have to reject warranty claims for any consequences and impacts.