
BS-AFNOR Coolant

1 Description

BS-Afnor coolant is a cost-efficient coolant concentrate providing frost and corrosion protection.

For the perfect operation of water-cooled internal combustion engines, the engine and cooling system have to be adequately protected from corrosion and frost damage.

Therefore a coolant is added to the cooling system.

Exempt from potentially harmful additives such as nitrites, amines and phosphates, **BS-Afnor coolant** also contributes to a safer environment.

2 Benefits

BS-Afnor coolant offers the following benefits to the user:

- **corrosion protection, also for non-ferrous metals**
- **frost protection**
- **boiling protection**
- **miscibility**
- **seal compatibility**
- **hard water stability**
- **favourable cost**

3 Application

BS-Afnor coolant provides year-round frost and corrosion protection. It is recommended to use at least 33 vol.% of **BS-Afnor coolant** in the coolant solution to secure corrosion protection properties. This provides frost

protection to -17°C. Concentrations higher than 70 vol.% are not recommended; as the maximum frost protection (about -69°C) is reached at that level.

4 Standards

BS-Afnor coolant conforms to British Standard BS6580:1992 and BS 6580:2010* and to the French Standard Afnor NFR15-601.

** For product containing 25% or more 1,2 ethane diol which is supplied as packaged goods intended for retail to the general public, BS 6580:2010 requires the addition of minimum 25 ppm of denatonium benzoate, or the package has to be fitted with a childproof closure.*

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5 Availability

BS-Afnor coolant is available in bulk and various packages in different colours with or without bittering agent. Please contact your

local **Arteco** area sales manager on availability of packages, dilutions and colours.

6 Compatibility and mixability

For optimal performance and controlled quality, we recommend the use of deionised or distilled water to prepare the ready-to-use dilutions. We refer to our information leaflet

on water quality recommendations. Contact your local area sales manager for more information.

7 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 minimized.

As with any antifreeze coolant, the use of galvanised steel is not recommended for pipes or any other part of the storage/mixing installation.

Further, to prevent the degradation of the colour dyes and fading or discoloration of the colour present in the coolant, it is strongly advised not to expose the coolant in translucent packages to direct sunlight.. This reaction can be accelerated if coupled with high ambient temperatures. It is therefore advisable to store coolant filled in translucent packages indoors to avoid this issue.

8 Toxicity & safety

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 should not be used to protect the inside of drinking water systems against freezing. The transport is not regulated.

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Addendum - Technical information

Chemical and physical properties BS-Afnor Coolant

	Afnor R-15-601 requirements	BS 6580 requirements	BS-Afnor coolant	Method
ethylene glycol, w/w	base	base	94,4 %	
water content, w/w	5 % max		5 % max	NFT 78-104
ash content, w/w	3 % max		1.0 % typ.	ASTM D1119
nitrite, amine, phosphate			Nil	
colour			Colourless or coloured on request	
density, 20°C, g/ml	1.050 to 1.150		1.12 typ.	ASTM D4052
equilibrium boiling point	> 155°C	> 150°C	171°C typ.	ASTM D1120
reserve alkalinity (pH 5.5)	10 min		14.5 typ.	ASTM D1121
storage stability	1 year		> 1 year	

Chemical and physical properties Dilutions

	Afnor R-15-601 requirements	BS 6580 requirements	50 % dilution	33 % dilution	Method
pH	7 à 8.5		8,1 typ.	8,3 typ.	ASTM D1287
foaming properties at 88°C ■ break time		50 ml max 5 sec. max		50 ml max 5 sec. max	ASTM D1881
freezing point, initial crystallization	-15°C max.	-33°C max	-35°C typ.	-17°C typ.	ASTM D1177
effect on non-metals	no effect		no effect		
staining characteristics	no effect			no effect	
hard water stability	no precipitate	< 0.5 ml	< 0.5 ml no precipitate		

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Afnor R 15-602-7 / ASTM D1384 glassware corrosion tests

	weight loss in mg/coupon ¹					
	brass	copper	solder	steel	cast iron	aluminium
ASTM D3306 (max)	10	10	30	10	10	30
Afnor R 15-601 (max)	5	5	5	2.5	4	-10 to 20
BS-Afnor coolant	-0.6	-0.6	0.2	1.4	0.9	0.0

Corrosion protection

BS 5177: 2.2 hot immersion test

	weight loss in mg/coupon ¹					
	brass	copper	solder 97 %Pb	steel	cast iron	aluminium
BS 6580 (max)	10	10	15	10	10	15
BS-Afnor coolant hot	-0.1	0.0	4.6	-0.2	-0.3	-2.3

Afnor R 15-602-8 aluminium heat transfer test

	weight loss in mg/cm ² /week ¹
Afnor R 15-601 (max)	1.0
BS-Afnor coolant	0.63

BS 5117: 2.6 aluminium heat transfer test

	weight loss in mg/cm ² /week ¹
BS 6580 (max)	1.0
BS-Afnor coolant	0.19

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