OPUS LUBRICANTS PRODUCT DATA

BASF TYPE ANTIFREEZE

Description

OPUS BASF Type Antifreeze is an ethylene glycol-based engine coolant concentrate formulated for optimal performance in both light and heavy-duty engine applications. The inhibitors used include organic additives in combination with borate and silicate which are known to provide excellent protection across all applications. BASF Antifreeze is free from nitrites, amines and phosphates (NAP free). Other benefits include:

- Thermal characteristics that permit effective engine cooling without boiling.
- Outstanding anti-corrosion protection for cast iron, aluminium, brass, copper, solder and steel.
- Protection against frost, depending on the concentration chosen.
- Use of sophisticated silicate stabilization technology to ensure good compatibility with hard water.
- Excellent antifoaming characteristics.
- Exceeds the requirements of most other European and International Standards including: ASTM D3306, ASTM D4985, SAE J1034, BS 6580 (2010) and AFNOR NF R15-601.

BASF Type is available in concentrate (neat) form or as a 50/50 ready mix solution in 20 and 205 litre drums, 1000 litre IBC's.

Typical data

Appearance	Can be Clear, Blue or Green liquid, free from matter in suspension	
Density at 20 °C	1.129 g/cm³	ASTM D 4052
pH (50 % vol in Water)	8.1	ASTM D 1287
Freezing Point (50 % vol in Water)	-38 °C	ASTM D 1177
Boiling Point	166°C	ASTM D 1120
Reserve Alkalinity (ml HCl N/10)	13.0 ml	ASTM D 1121
Water Content	3.8 % wt	ASTM D 1123
Foaming Characteristics at 88 °C	30 ml	ASTM D 1881
- Height	2 sec	
- Breaktime		

These are typical properties and do not constitute a specification, for specification limits please refer to the product specification. The product contains a bittering agent (denatonium benzoate) added at 70 ppm in compliance with all current international legislation that requires an aversive agent to be used in ethylene glycol-based antifreeze.

Performance Levels

BASF Antifreeze complies with the following quality standards:

- AFNOR NF R15-601 (France)
- AS 2108 (Australia)
- ASTM D3306 (USA)
- BS 6580 (UK)
- CUNA NC 956-16 (Italy)
- JIS K 2234 (Japan)
- ONORM V 5123 (Austria)
- SAE J 1034 (USA)
- UNE 26-361 (Spain)

BASF Antifreeze is suitable for use against the following standards:

Alfa Romeo, Fiat, Lancia	Fiat 9.55523
Audi	TL-774 C (G 11)
Behr	
BMW / Mini	GS 94000
Chrysler	MS-7170
Cummins	85T8-2
Deutz	DQC CA-14
Ford	ESD-M97B49-A
Iveco	Standard 18-1830
JI Case	JIC-501
Lada / Avtovaz	TTM VAZ 1.97.717-97
MAN	324 Type NF
Mercedes-Benz	MB 325.0
MTU	MTL 5048
Opel - GM	GME L1301
Perkins	
Porsche	TL-774 C (G 11)
Seat	TL-774 C (G 11)
Skoda	TL-774 C (G 11)
Toyota	1WW/2WW engines
Volkswagen	TL-774 C (G 11)
Volvo Cars	128 6083 / 002
Volvo Construction	(produced before 2005)
Volvo Trucks	(produced before 2005)

Compatibility

Although it is always recommended to use deionized or demineralized water to dilute antifreeze, BASF Antifreeze is formulated to be able to cope with different water qualities and is compatible with hard water. BASF Antifreeze is compatible with all types of plastics and rubbers used in engine coolant systems. BASF Antifreeze is fully miscible with other coolants and can be safely mixed with them. However, optimal performance and longevity of service can only be guaranteed by exclusive use of BASF Antifreeze.

Freeze Protection

BASF Antifreeze is a concentrated product and should be diluted for use with good quality water.
We recommends that for optimum performance dilutions are made up with distilled or deionized water.
The freeze protection afforded by the various dilutions is detailed in the table below:

Concentration (vol %)	H2O (vol %)	Freeze Protection (°C)
33	67	-20
50	50	-40
67	33	-70

In order to provide a satisfactory level of corrosion protection it is recommended to use at least 33% (1:2) volume of BASF Antifreeze in the coolant solution. In line with most car manufacturers we recommends a 50% (1:1) volume solution for optimum performance.
For cold climates use 67% (2:1) volume, concentrations above 67% volume are not recommended and give no advantage.

Corrosion Protection

Protection from corrosion is the most important function of a coolant concentrate and is achieved by the inclusion of a well-balanced inhibitor package. In modern engines with the greater use of aluminium alloys and thinner section castings, avoidance of corrosion problems is critical.

The tables below demonstrate the effective corrosion protection provided when tested against the industry standards such as ASTM D1384 (multi-metal corrosion in glassware) and ASTM D4340 (corrosion of cast aluminium alloys under heat-rejecting conditions).

ASTM D1384
(Glassware Corrosion, mg per test piece)

Test Specimen	Monoethylene Glycol (33% vol in H2O)	Coolant C2270 (33% vol in H2O)	ASTM D3306 limit
Copper	6.5	0.8	10
Solder	345	-2.2	30
Brass	8	1.8	10
Steel	1474	0.8	10
Cast Iron	2472	0.2	10
Aluminium	30	-1.2	30

ASTM D4340
(Corrosion of Cast Aluminium Alloys under Heat-Rejecting Conditions)
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Mass Change (mg/cm_2/week)	ASTM D3306 Limit
-0.01	1.0

Storage and Handling

BASF Antifreeze has a shelf life of at minimum three years when stored in air-tight containers at a maximum temperature of 30°C. Translucent containers should not be stored outside in direct sunlight, especially in warm climates. BASF Antifreeze can be stored in mild steel, lacquer lined or HDPE containers. As with any glycol-based engine coolant the use of galvanized steel is not recommended for pipes or any other part of the storage/mixing installation.

Disposal of used or unused coolant must be carried out in accordance with local and national law, consult the material safety data sheet for further information.

Hazards and Safety

As with all chemical products, awareness and control of any potential hazards is of high importance. Please consult the material safety data sheet which is available detailing the hazards associated with this product.

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