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Glyscorr® G 93

Glyscorr G 93 is an inhibitor concentrate which is added to the cooling water of internal combustion engines in cases in which the coolant does not need to be protected from freezing.

Glyscorr G 93 is phosphate-, nitrite- and amine-free.

Properties

At a concentration of 10% by volume, Glyscorr G 93 affords excellent protection against cavitation and corrosion to all metals and alloys that are used in cooling systems, such as aluminium, ferrous and yellow metals. Glyscorr G 93 also prolongs the normal working life of water pumps. It is especially appropriate for use in heavy-duty engines such as those used in trucks and on ships.

Glyscorr G 93 is officially approved and fulfills the requirements of the following standards:

- Scania
- MTU MTL 5049
- Deutsche Bahn
- German Army

Miscibility

Glyscorr G 93 must be diluted with water before use.

It is hard water compatible and can be mixed with tap water* before use to give solutions in the concentration of 10% by volume.

*For preparation use clean, not overly hard water.

Wastewater from mining, seawater, brackish water, brine and industrial wastewater are all unsuitable.

The analytical data of the water should not exceed the following limits:

- Water hardness: 0 - 20° dH (0 - 3.6 mmol/l)
- Chloride content: max. 100 ppm
- Sulphate content: max. 100 ppm

Should the analysis of the water exceed the approval limits, then it has to be suitable treated, for example by mixing with pure, distilled or deionised water. Excessive chloride or sulphate levels can be corrected this way.

Chemical Nature

Mixture of water and mono ethylene glycol with inhibitors

Appearance

Clear liquid without solid contamination

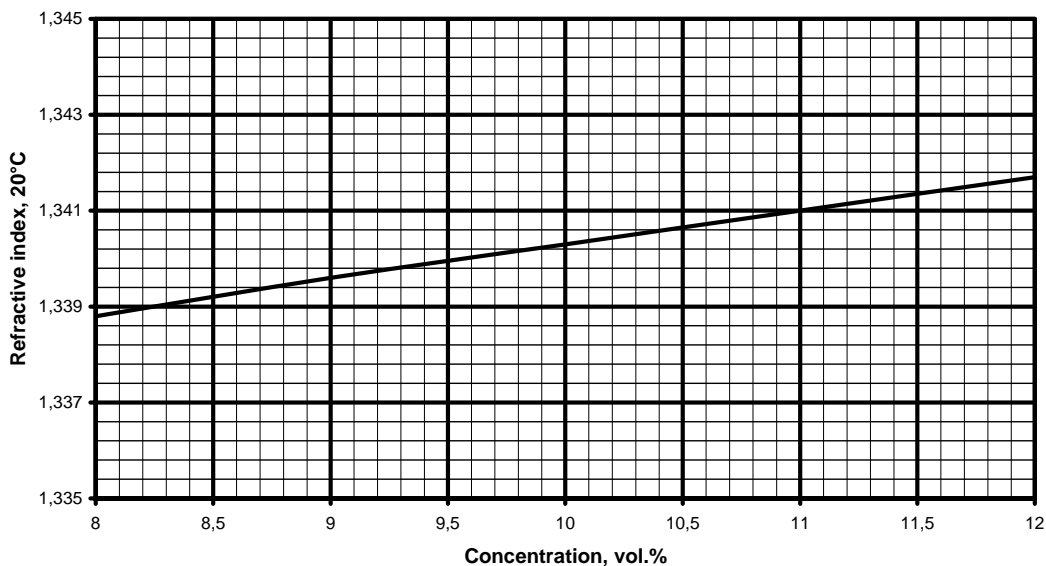
Physical Data

Density, 20 °C	1.092 - 1.095 g/cm ³	DIN 51 757-4
Refractive index, 20 °C	1.397 - 1.401	DIN 51 423-2
pH value	9.3 - 9.7	ASTM D 1287
Reserve alkalinity of 5 g	11 - 14 ml	ASTM D 1121
Water content	max. 50 %	DIN 51 777-1

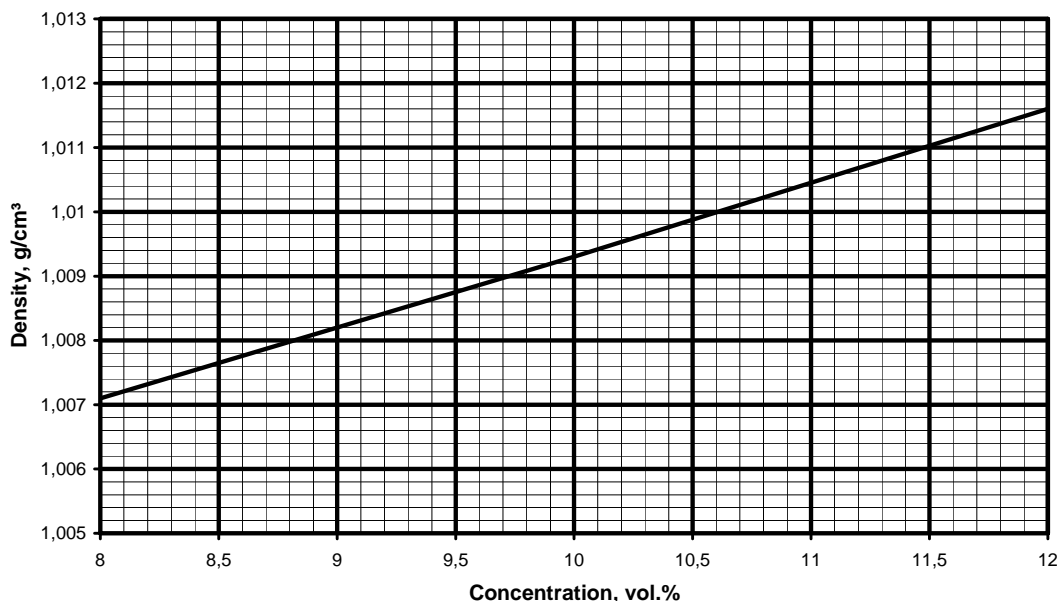
Solubility

Miscibility with water	Miscible in all proportions
Miscibility with hard water 10 vol.% solution	no precipitation

Refractive index 20°C / Concentration



Density at 20°C / Concentration



Foaming characteristics

70 ml max. / 5 s max.

ASTM D 1881

Swelling of rubber

For the SBR and EPDM qualities normally encountered on the market
10 vol.% solution in water

80°C/168 h 0 - 3 % i.e. the roughly the same as when immersed in pure water

Corrosion Performance

Glassware Corrosion Test

ASTM D 1384
10 vol.% solution in water

Metals and alloys	Typical weight loss in mg/Coupon	limit ASTM D 3306
Copper	1.6	max. 10
solder	0.0	max. 30
Brass	0.8	max. 10
Steel	0.0	max. 10
Cast iron	-0.2	max. 10
Cast aluminium	0.3	max. 30

Heat Transfer Corrosion Test

ASTM D 4340
10 vol.% solution in water

	Typical corrosion rate in mg/cm ² /week	limit ASTM D 3306
Cast aluminium	-0.08	max. 1.0

Quality control

The above data represent average values at the time of going to press this technical information. They cannot be regarded as specified data. Specified product data are issued as a separate product specification.

Storage stability

Glysacorr G 93 has a shelf life of at least three years when stored in originally close, air-tight containers at temperature of max. 30°C. Do not use galvanized containers for storage because they may corrode.

Colour

Glysacorr G 93 is available in the following colour:

- Glysacorr G 93-94 green, fluorescent

Safety

When using this product, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

February 2008