

UNICO TEC (PTY) LTD

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|--------------------------------|---------------------------------|---------------|------------|
| COOLANT CONCENTRATE | TECHNICAL DATA SHEET | Date of issue | 03/02/2016 |
| | | Date Revised | 26/05/2022 |
| | | Revision no | 03 |
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IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

| | |
|--------------------|---|
| Trade name | : Engman's Super Antifreeze |
| Product name | : Glysantin G48 |
| Product type | : Engine Coolant Concentrate |
| Supplier | : Unico Manufacturing Co. (PE) (Pty) Ltd. |
| Address | : 6 Celebes Road, Island View, Durban, South Africa |
| Contact number | : +27 (31) 466 1541/2 |
| Emergency contacts | : Vishen Kanhai +27(64) 752 2197/ +27 82 340 3521 |

DESCRIPTION

Glysantin® G48® is an engine coolant concentrate based on ethylene glycol that needs to be diluted with water before use.

Glysantin G48 contains a corrosion inhibitor package based on salts of organic acids and silicates (Hybrid Coolant).

Glysantin G48 is free of nitrites, amines and phosphates.

Properties

Glysantin G48 was developed to protect engines against corrosion, overheating and frost damage. It gives a high degree of corrosion protection to engine components such as radiators, cylinder blocks/heads, water pumps and heat exchangers, and avoids deposits.

Glysantin G48 fulfills the requirements of the following coolant standards: AS 2108-2004, ASTM D 3306, ASTM D 4985, SAE J1034, AFNOR NF R 15-601, ÖNORM V 5123, CUNA NC 956-16, JIS K 2234:2006, SANS 1251:2005, China GB 29743-2013 and BS 6580:2010.

Furthermore Glysantin® G48® is officially approved by:

- BMW BMW GS 94000
- Bez. Reg. Arnsberg, 84.12.22.63-2001-2
- Dept. of Mining and Energy
- German Army TL 6850-0038/1
- Daimler / Mercedes-Benz MB-Approval 325.0
- Deutz DQC CA-14
- Jenbacher TA-Nr. 1000-0201
- Liebherr Minimum LH-00-COL3A
- MAN MAN 324-NF

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- MTU MTL 5048
- Opel / General Motors B 040 0240

- Porsche for 924, 928, 944, 968
- Saab 6901599
- VW / Audi / Seat / Skoda TL 774-C
- Volvo Truck until MY 2005
- MWM TR 0199-99-2091-12 DE

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Miscibility Since the special advantages of Glysantin G48 will only be achieved when Glysantin G48 is used exclusively, mixing Glysantin G48 with other Glysantin coolants or products from other producers is not recommended.

Glysantin G48 should be blended with water in a concentration amongst 33 to 60% by volume prior to infilling. The usage of a 50/50 ratio for the mixture of water and Glysantin is generally advisable.

For preparation of the coolant it is recommended to use distilled or deionized water. In most cases tap water is also appropriate.

Analysis values of the water may not exceed the following threshold values:

Water hardness: 0 – 2.7 mmol/l

Chloride content: max. 100 ppm

Sulphate content: max. 100 ppm

Chemical nature

Ethylene glycol with corrosion inhibitors

Appearance Clear liquid

Physical data

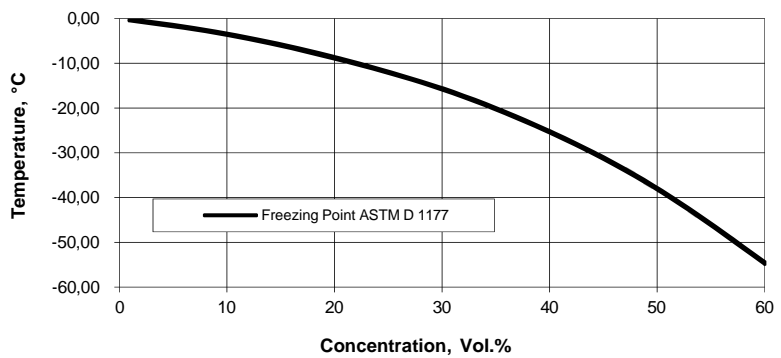
| | | |
|-------------------------|---------------------------------|-----------------|
| Density, 20 °C | 1.121 – 1.123 g/cm ³ | DIN 51 757-4 |
| Viscosity, 20 °C | 24 – 28 mm ² /s | DIN 51 562 |
| Refractive index, 20 °C | 1.432 – 1.434 | DIN 51 423-2 |
| Boiling point | > 165 °C | ASTM D 1120 |
| Flash point | > 120 °C | DIN EN ISO 2592 |
| pH value | 7.1 – 7.3 | ASTM D 1287 |
| Reserve alkalinity | 13 – 15 ml | ASTM D 1121 |
| Ash content | max. 1.5 % | ASTM D 1119 |
| Water content | max. 3.5 % | DIN 51 777-1 |

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| | | |
|-------------------------|-------------------|--------------|
| Frost protection | Freezing point | ASTM D 1177 |
| | 50 vol % solution | below -38 °C |
| | 33 vol % solution | below -18 °C |

Frost Protection of Glysantin® G48®



| | | | |
|--------------------------------|-------------------|------------------|-------------|
| Foaming characteristics | 33 vol % solution | max. 50 ml / 3 s | ASTM D 1881 |
|--------------------------------|-------------------|------------------|-------------|

| | | | |
|--------------------------------|----------------------|---------------------------|-------------|
| Electrical conductivity | 30-50 vol % solution | approx. 4 mS/cm, at 23 °C | ASTM D 1125 |
|--------------------------------|----------------------|---------------------------|-------------|

Glassware Corrosion Test ASTM D 1384

| Metal coupons | typical weight loss mg/coupon | ASTM D 3306 limit mg/coupon |
|---------------|----------------------------------|--------------------------------|
| Copper | 0.1 | 10 max |
| Solder | 0.3 | 30 max |
| Brass | 0.2 | 10 max |
| Steel | -0.2 *) | 10 max |
| Cast iron | -1.0 *) | 10 max |
| Cast aluminum | -1.1 *) | 30 max |

*) remark: negative values mean a weight gain

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Heat Transfer Corrosion Test ASTM D 4340

| | typical corrosion rate mg/cm ² /week | ASTM D 3306 limit mg/cm ² /week |
|---------------|--|---|
| Cast aluminum | -0.07 *) | 1.0 max |

Simulated Service Corrosion Test

| | ASTM D 2570 | | |
|---------------|----------------------------------|--------------------------------|--|
| Metal coupons | typical weight loss mg/coupon | ASTM D 3306 limit mg/coupon | |
| Copper | 8.8 | 20 max | |
| Solder | 0.0 | 60 max | |
| Brass | 10.7 | 20 max | |
| Steel | 0.1 | 20 max | |
| Cast iron | -1.1 *) | 20 max | |
| Cast aluminum | -1.2 *) | 60 max | |

*) remark: negative values mean a weight gain

Cavitation Erosion Corrosion Test

| | ASTM D 2809 | | |
|---------------------|-------------|-----------------------------|--|
| Aluminum water pump | Rating | ASTM D 3306 limit Rating | |
| Aluminum water pump | 9 | 8 min | |

Quality Control

The above-listed data represent average values at the time of going to press of this Data Sheet. They are intended as a guide to facilitate handling and cannot be regarded as specified data. Specified product data are issued as a separate product specification.

Storage Stability

Glysantin G 48 has a shelf life of at least three years when stored in originally closed, air-tight containers at temperatures of maximum 30 °C. Do not use galvanized containers for storage

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Color

Glystantin G48 is usually available in blue-green. Different colors may be seen in special cases.

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.