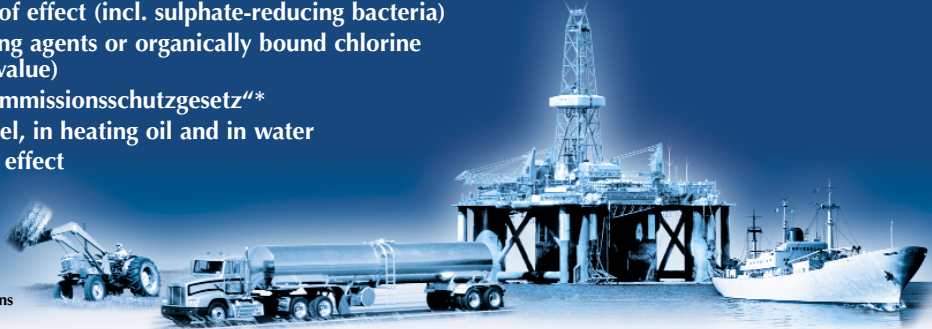


PRESERVATIVE FOR DIESEL FUELS, HEATING OILS AND TECHNICAL PRODUCTS

- Good anti-corrosive properties and provides lasting protection against microbial material degradation
- Broad, balanced spectrum of effect (incl. sulphate-reducing bacteria)
- Contains no nitrate, nitrosing agents or organically bound chlorine (has no effect on the AOX value)
- Approved by the „Bundes Immissionsschutzgesetz“*
- Good solubility in diesel fuel, in heating oil and in water
- Bactericidal and fungicidal effect
- Good immediate effect

* German Law on the Prevention of Immissions



Technical data

		CAS-Nr.
Active	3,3'-Methylenebis[5-methyloxazolidine]	66204-44-2
Appearance	Clear – nearly clear, colourless – yellowish liquid	
Density (20 °C)	1.049 – 1.069 g/ml	
Viscosity (DIN 53 211)	Flow time < 15 sec (20 °C)	
Odour	Amine-like	
Refractive index (20 °C)	1.469 – 1.477	
Boiling point	approx. 116 °C	
Flashpoint (ISO 2719)	> 100 °C	

Use concentration

	Recommended dosage	
Diesel fuels/heating oils (prophylactic treatment)	0.05 – 0.20 l/1000 l diesel/heating oil continuously (50 – 200 ppm)	As with all preservatives, under-dosing must be avoided, because of the demand for biodegradability the effectiveness of preservatives used below the required activity level are quickly lost. Should under-dosing occur on a regular basis there is the possibility that some selected microorganisms may not be killed by the preservative. In those circumstances, as most other organisms have been killed, the selected microorganisms will find ideal growth conditions. Use biocides safely. Always read the label and product information before use.
Diesel fuels/heating oils (decontamination of contaminated diesel fuel/heating oil)	0.20 – 0.50 l/1000 l diesel/heating oil (200 – 500 ppm)	
Diesel fuels/heating oils (shock dosing)	0.5 – 1.0 l/1000 l diesel/heating oil (500 – 1000 ppm)	

Instructions on application

For contaminated diesel fuel and heating oil, 200 – 500 ppm of **GrotaMar 71®** is generally sufficient (this corresponds to 0.2 – 0.5 litres per tonne of diesel fuel/heating oil). As a result of the good stability of **GrotaMar 71®** in diesel fuel and heating oil, after three months' storage at room temperature more than 80% of the initial concentrations was still detected. **GrotaMar 71®** can thus ensure adequate long-term protection even with low concentrations of 50 – 200 ppm. In case of microbial contamination of tank systems that is already visible or is causing technical problems, e.g. if filter blockages frequently occur, we recommend shock dosing with 500 – 1000 ppm of **GrotaMar 71®**. **GrotaMar 71®** is best added to the dewatered tank that is about a third full. When the tank is filled, the product is mixed into the system. The dosage must be related to the total volume. In cases of heavy fouling, the system should, if possible, be cleaned before **GrotaMar 71®** is used.

Microbiological efficacy

The efficacy of the product has been tested against the following microorganisms according to DGHM (German Society for Hygiene and Microbiology) – MIC in % of the product.

Bacteria	MIC	Fungi	MIC	Yeasts	MIC	Sulphate-red. bacteria	MIC
Alcaligenes faecalis	0.015	Aspergillus niger	0.030	Candida albicans	0.125	Desulfovibrio desulfuricans	0.050
Enterobacter cloacae	0.030	Fusarium oxysporum	0.030	Rhodotorula mucilaginosa	0.030	Organism found in practice (isolated)	0.125
Escherichia coli	0.030	Penicillium funiculosum	0.015	Saccharomyces cerevisiae	0.125		
Proteus vulgaris	0.030						
Pseudomonas aeruginosa	0.030						
Pseudomonas fluorescens	0.015						
Pseudomonas putida	0.125						
Staphylococcus aureus	0.030						
Legionella pneumophila (prEN 13623)	0.1 (in 60 min)						

Compatibility

Material compatibility	GrotaMar 71® causes no corrosion of steel, stainless steels, aluminium or zinc. In the case of copper and brass there is a slight effect, which also leads to discolouration of the product.
Plastics	GrotaMar 71® (in the concentrate) does not attack polyethylene (PE) or polypropylene (PP). When handling the concentrate, contact with other plastics should be avoided. In particular, the marked swelling of hard PVC as a result of GrotaMar 71® must be noted. This effect does not occur in the recommended use concentration.
Sealants	For seals that come in contact with GrotaMar 71® concentrate we recommend the use only of PTFE seals or PTFE-coated seals. In particular, the fact that chloroprene rubber (e.g. neoprene) swells to a marked degree must be taken into account. If PTFE cannot be used, preference should be given to seals made of EPDM. In the recommended use concentration, the choice of the sealants can be extensively unconsidered.

Safety and Labelling

R- and S-Phrases	R 21/22, 34, 52 S 26, 36/37/39, 45, 61
Labelling	C (Corrosive)
For further hazard instructions and safety advice please refer to the actual material safety data sheet.	

Environmental information

At a sufficient degree of dilution, **GrotaMar 71®** is completely biodegradable (method: OECD 301D / EEC 84/449 C6). Dilutions of **GrotaMar 71®** do not interfere with the operation of municipal sewage treatment plants. **GrotaMar 71®** contains no organic chlorine compounds, so that there is no effect on the AOX value as a result of **GrotaMar 71®** in the waste water. **GrotaMar 71®** is halogen-free, and can therefore be used in accordance with the 19th German Law on the Prevention of Emissions, which prohibits chlorine and bromine compounds. **GrotaMar 71®** contains no organic solvents. The canisters and drums used by Schülke & Mayr are made of polyethylene (HDPE) and are labelled accordingly. The 1000 kg - containers are covered by a return scheme that in Europe ensures collection of the used containers free of charge and appropriate re-use. The labels are made of PE. S&M packaging materials contain no PVC and can be recycled. For further information please ask for our detailed environmental report.

Listings and approvals of Active ingredients

EINECS / ELINCS (Europe)	EINECS-Nr. 266-235-8
AICS (Australia)	
PICCS (Philippines)	
TSCA (USA)	
BIMSCH approved (Germany)	

Shelf life / Transport / Storage

Shelf life	24 months from date of production
Dangerous good	UN 2735
Package sizes	500ml, 10kg, 200kg, 1000kg
Storage	Protect from heat and direct sunlight. Store at room temperature in the original container.

References / Approvals

Mercedes Benz AG - has been tested and approved for use in diesel fuels • **NATO** – stock no. 6850-17-9179543 • **German armed forces** supply No. 68 50-12-333 7409 • **Shell Netherlands** uses **GrotaMar 71®** for the preservation of diesel fuel • **Dr. G. Armstrong** School of Marine Technology, Newcastle University • **DAF Netherlands** recommends **GrotaMar 71®** for contaminated diesel fuel • **Kässbohrer company**, vehicle manufacturer, Ulm – **GrotaMar 71®** has been approved • **MAN Nutzfahrzeuge AG** - **GrotaMar 71®** has been tested and approved • **MTU – Friedrichshafen** – listed as an approved biocide • **Department of Trade and Industry, Aberdeen** - In the „Harmonized Offshore Chemical Notification Scheme List of Notified Chemicals“ (HOCNS) **GrotaMar 71®** is classified with „Gold Banner“ (CEFAS).

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United Arab Emirates · USA · Vietnam · Yemen · Yugoslavia



Our recommendations regarding our products are based on in-depth scientific testing in our Research Department, they are given in good faith, but no liability can be derived from them. In other respects our Conditions of Sale and Supply apply.

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