

**forte**

## PRESERVATIVE FOR TECHNICAL PRODUCTS

- ❑ Bactericidal and fungicidal effect
- ❑ Broad, balanced spectrum of effect (incl. sulphate-reducing bacteria)
- ❑ Good immediate effect
- ❑ Good anticorrosion properties
- ❑ Contains no nitrate, nitrosing agents or organically bound chlorine  
(has no effect on the AOX value)

### Technical data

		CAS-Nr.
Actives	2,2',2''-(Hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol Pyridine-2-thiol-1-oxide, Sodium salt	4719-04-4 3811-73-2
Appearance	Yellow liquid	
Density (20 °C)	1.152 – 1.160 g/ml	
Viscosity (DIN 53 211)	Approx. 60 sec. (20 °C)	
Odour	Amine-like	
Refractive index (20 °C)	1.474 – 1.483	
Boiling point	> 100 °C	
Flashpoint (ISO 2719)	> 100 °C	

### Use concentration

		Recommended dosage
Watermiscable metalworking fluids	0.15 %	The optimum use level should be evaluated by means of a repeated challenge test (e.g. BOKO-Test by S&M – Technical and Microbiological dept). <b>Use biocides safely. Always read the label and product information before use.</b>
Technical emulsions	0.15 %	
Metalworking fluid concentrates (0.15 % in the end dilutions)	2 – 4 %	

### Instructions on application

**Grotan® Forte** is suitable for use in metalworking fluid concentrates, technical emulsions or solutions and water-mixed metalworking fluids. **Grotan® Forte** can be used in the pH ranges from 8 to 11. **Grotan® Forte** is temperature-stable and can be used at high temperatures up to 80 °C. In order to avoid microbial growth and the resultant consumption of preservative from the outset, it is advisable to add the **Grotan® Forte** to the fresh mix of metalworking fluid. More can be added at weekly to fortnightly intervals depending on the discharge of the metalworking fluid. **Grotan® Forte** should be added at a point with good turbulence in order to ensure good distribution in the system. Before refilling the plant, system cleaning is recommended (e.g. with **Grotanol®**).

### 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
Alcaligenes faecalis	0.025	Aspergillus niger	0.025
Brevibacterium ammoniagenes	0.025	Aspergillus oryzae	0.100
Escherichia coli	0.010	Fusaria	0.010
Micrococcus luteus	0.010	Penicillium funiculosum	< 0.006
Proteus vulgaris	0.010	Penicillium expansum	< 0.006
Pseudomonas aeruginosa	0.025		
Pseudomonas putida	0.050		
Pseudomonas stutzeri	0.025		
Staphylococcus aureus	< 0.006		
Sulphate-reducing bacteria	MIC	Yeasts	MIC
Desulfovibrio desulfuricans	< 0.0004	Candida albicans	0.010
		Candida mogii	0.010
		"Practice yeast" (VW) (Rhodotorula mucilaginosa) isolated from water-mixed metalworking fluid	0.075

## Compatibility

<b>Aqueous dilution (0.15 %)</b>	No significant difference to tap-water.
<b>Material compatibility</b>	When metalworking fluids without a protective additive for non-ferrous metals are used, copper or copper-containing alloys may show discolouration of surfaces contacted with <b>Grotan® Forte</b> . From the available test results, it can be concluded that the addition of <b>Grotan® Forte</b> has virtually no influence on the material compatibility of the medium to be preserved. When selecting sealants, piping systems, collection baths, etc., the use of <b>Grotan® Forte</b> as a preservative can be disregarded, provided that it is used correctly. In the concentrate, <b>Grotan® Forte</b> causes no corrosion on steel, stainless steels, aluminium or zinc. In the case of copper and brass there is a slight effect and discolouration on the surface of the metals.
<b>Plastics</b>	In the laboratory tests <b>Grotan® Forte</b> proved to be highly compatible with plastics; the swelling of the test pieces was less than that resulting from the effect of mains water.
<b>Sealants</b>	The tested sealants were virtually unaffected by <b>Grotan® Forte</b> , so that all usual sealants can be used when using <b>Grotan® Forte</b> .

## Safety & Labelling

<b>R- and S-Phrases</b>	R 22, 43 S 24, 37
<b>Labelling</b>	Xn (Harmful)
	For further hazard instructions and safety advice please refer to the actual material safety data sheet.

## Environmental information

At a sufficient degree of dilution, all components of **Grotan® Forte** are completely biodegradable. Dilutions of **Grotan® Forte** do not interfere with the operation of municipal sewage treatment plants. **Grotan® Forte** contains no organic chlorine compounds, so that there is no effect on the AOX as a result of **Grotan® Forte** in the waste water. **Grotan® Forte** 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)
TSCA (USA)
DSL / NDSL (Canada)
ENCS (Japan)
AICS (Australia)
Fullfills the requirements of the TRGS 611 (Germany)

## Shelf life / Transport / Storage

<b>Shelf life</b>	36 months from date of production
<b>Dangerous good</b>	No
<b>Package sizes</b>	10 kg, 200 kg, 1000 kg
<b>Storage</b>	Protect from frost, heat and direct sunlight. Store at room temperature in the original container.

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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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