

# grotan<sup>®</sup> TK 2

## Preservative for technical products

- Bactericidal and fungicidal effect
- Broad, balanced spectrum of effect (incl. sulphate-reducing bacteria)
- Free of nitrate, nitrosating agents and salts

Active substance		
EINECS-Name:	CAS-No.	EC-No.
(Ethylenedioxy)dimethanol	3586-55-8	222-720-6
5-Chloro-2-methyl-2H-isothiazol-3-one	26172-55-4	247-500-7
2-Methyl-2H-isothiazol-3-one	2682-20-4	220-239-6
(Mixture of 5-Chloro-2-methyl-2H-isothiazol-3-one and 2-Methyl-2H-isothiazol-3-one)	55965-84-9	

Physico-chemical properties	
Colour	colourless - yellow
Form	Liquid
Odour	characteristic
Density (20 °C)	1.023 - 1.043 g/ml
Refractive index (20 °C)	1.345 - 1.357
Initial boiling point	ca. 100 °C
Flash point (ISO 2719)	> 100 °C
Flow time (DIN 53211 - 20 °C)	< 15 s
Water solubility (20 °C)	in all proportions
VOC-Content to Directive 2004/42/EC	7.2 %

Fields of application		
The optimum use level should be evaluated by means of a repeated challenge test (e.g. at schülke Technical and Microbiological department). <b>Use biocides safely. Always read the label and product information before use.</b>		
	Recommended dosage	
Watermiscable metalworking fluids	1.5 g/kg	(0.15 %)
Technical emulsions	1.5 g/kg	(0.15 %)

Indications for use	
Solubility	Fully soluble in water and in most polar organic solvents.
Recommended use pH range	3 - 9.5
Maximum use temperature	max. 40 °C
Additional advice	In order to avoid microbial growth and the resultant consumption of preservative from the outset, it is advisable to add grotan <sup>®</sup> TK 2 to the fresh mix of metalworking fluid. More can be added at weekly to fortnightly intervals depending on the discharge of the metalworking fluid. When adding grotan <sup>®</sup> TK 2, it 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 <sup>®</sup> ).

Microbiological efficacy					
The efficacy of the product has been tested against the following microorganisms according to DGHM (German Society for Hygiene and Microbiology). Determination of the minimum inhibitory concentration in the serial dilution test produced the following values (MIC in % of the product):					
Bacteria (gram-negative)	MIC	Bacteria (gram-positive)	MIC	Yeasts	MIC
<i>Alcaligenes faecalis</i>	0.015	<i>Staphylococcus aureus</i>	0.015	<i>Candida albicans</i>	0.005
<i>Escherichia coli</i>	0.015			<i>Candida mogii</i>	0.010
<i>Proteus vulgaris</i>	0.030			<i>Rhodotorula mucilaginosa</i>	0.010
<i>Pseudomonas aeruginosa</i>	0.015			Moulds	MIC
				<i>Aspergillus niger</i>	0.010
				<i>Aureobasidium pullulans</i>	0.005
				<i>Fusarium oxysporum</i>	0.010
				<i>Penicillium spp.</i>	0.005

# grotan<sup>®</sup> TK 2

Compatibility*		
	compatible	to be avoided
concentrate	high-alloyed stainless steel (e. g. 1.4571), plastics, sealants (polytetrafluoroethylene is recommended)	polymethyl methacrylate (PMMA), polycarbonate, PVC (soft), fluorinated rubber
aqueous dilution (0.15 %)	No significant difference to water	Water incompatible materials, otherwise see advice for the undiluted product
Further information	Advice for post dosaging grotan <sup>®</sup> TK 2 contains no corrosion inhibitor. When handling non-ferrous metal or low alloyed steel, probably a further insert of non-ferrous metal inhibitors or corrosion inhibitors could be necessary.	

\*Compatibility has to be proved in each case

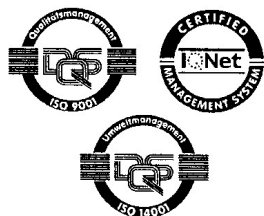
Labelling	
R-phrases(s)	R34, R43, R51/53
S-phrases(s)	S26, S35, S36/37/39, S45
Labelling	C (Corrosive), N (Dangerous for the environment)
	For further hazard instructions and safety advice please refer to the actual material safety data sheet.

**Environmental information**  
 At a sufficient degree of dilution, all components of grotan<sup>®</sup> TK 2 are completely biodegradable. Dilutions of grotan<sup>®</sup> TK 2 do not normally interfere with the operation of waste water treatment plants. The canisters and drums used by schülke are made of polyethylene (HDPE) and are labelled accordingly. The 1000 kg containers are covered by a return scheme that ensures collection of the used containers free of charge and appropriate reuse all over Europe. The labels are made of PE. schülke 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)
ECL (Korea)
AICS (Australia)
PICCS (Philippines)
IECSC (China)
TSCA (USA)*
DSL / NDSL (Canada)*
ENCS (Japan)*
Fullfills the requirements of the TRGS 611 (Germany)
* In preserved aqueous products the (ethylenedioxy)dimethanol can be described also as a hydrolyzing product, ethane-1,2-diol and formaldehyde.

Transport & Storage	
Dangerous goods	Yes
UN-Number	1760
Packaging group	III
Package sizes	25 kg, 200 kg, 1000 kg
Shelf life	24 Months
Storage	Protect from frost, heat and direct sunlight. Store at room temperature in the original container.

## schülke subsidiaries:



### Belgium

S.A. Schülke & Mayr  
 Belgium N.V.  
 1830 Machelen  
 Tel. +32-2-479 73 35  
 Fax +32-2-479 99 66

### Netherlands

Schülke & Mayr Benelux B.V.  
 2003 LM-Haarlem  
 Tel. +31-23-535 26 34  
 Fax +31-23-536 79 70

### China

Schülke & Mayr GmbH  
 Shanghai Representative Office  
 Shanghai 200041  
 Tel. +86-21-62 17 29 95  
 Fax +86-21-62 17 29 97

### Switzerland

Schülke & Mayr AG  
 8003 Zürich  
 Tel. +44-466 55 44  
 Fax +44-466 55 33

### France

Schülke France SARL  
 94250 Gentilly  
 Tel. +33-1-49 69 83 78  
 Fax +33-1-49 69 83 85

### United Kingdom

Schülke & Mayr UK Ltd.  
 Sheffield S9 1 AT  
 Tel. +44-1142-54 35 00  
 Fax +44-1142-54 35 01

### Italy

Schülke & Mayr Italia S.r.l.  
 20148 Milano  
 Tel. +39-02-40 21 820  
 Fax +39-02-40 21 829

### Other Distributors:

Argentina · Australia · Austria · Belarus · Benin · Brazil · Bulgaria · Canada · Croatia · Czech Republic · Denmark · Egypt · Estonia · Finland · Ghana · Greece · Hong Kong · Hungary · India · Indonesia · Iran · Israel · Japan · Jordan · Korea · Kuwait · Latvia · Lebanon · Lithuania · Macedonia · Malaysia · New Zealand · Nigeria · Norway · Oman · Philippines · Poland · Portugal · Russia · Saudi Arabia · Singapore · Slovakia · Slovenia · South-Africa · Spain · Sweden · Syria · Taiwan · Thailand · Turkey · Ukraine · United Arab Emirates · USA · Vietnam · Yemen

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. It is the responsibility of the final product manufacturer to assure that claims made for the final product are in conformance with all applicable local laws. In other respect our Conditions of Sale and Supply apply.

**Schülke & Mayr GmbH**  
 22840 Norderstedt  
 Germany  
 Tel. +49 40 52100-0  
 Fax +49 40 52100-244  
[www.schuelke.com](http://www.schuelke.com)  
 sai@schuelke.com