

parmetol[®] DF 35

Versatile preservative

- Water based combination of chloromethyl-/ methylisothiazolone (CMI/ MI) and O-formal
- Suitable for preservation of a broad range of water based products
- Broad spectrum of efficacy
- Good head space protection
- Eminently suitable for disinfection and sanitation of contaminated plants and products
- Approved for Ecolabel, e.g. "Blue Angel" or "European Flower"

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 - light yellow
Form	Liquid
Odour	aldehyde like
Density (20 °C)	1.134 - 1.146 g/cm ³
Refractive index (20 °C)	1.395 - 1.403
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
Foaming characteristics (DIN 53902)	Non foaming (0.2 % in water)
VOC-Content to Directive 2004/42/EC	34 %

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). Limits for labelling can be seen from the separate schülke labelling sheet.

Use biocides safely. Always read the label and product information before use.

	Recommended dosage	
Dispersion paints	1.0 - 2.0 g/kg	(0.10 - 0.20 %)
Textured coatings/ plasters	1.0 - 2.0 g/kg	(0.10 - 0.20 %)
Polymer dispersions	0.5 - 1.5 g/kg	(0.05 - 0.15 %)
Glues, adhesives	1.5 - 2.0 g/kg	(0.15 - 0.20 %)
Sealants	1.0 - 2.0 g/kg	(0.10 - 0.20 %)
Household products	0.5 - 2.0 g/kg	(0.05 - 0.20 %)
Kaolin-/ chalk-/ starch-slurries	0.05 - 5.0 g/kg	(0.005 - 0.50 %)
Sanitation / Disinfection	3.0 - 30.0 g/kg	(0.30 - 3.0 %)

Indications for use

Solubility	Fully soluble in water and in most polar organic solvents.
Recommended use pH range	3 - 10
Maximum use temperature	max. 60 °C (depending on pH; recommended: max. 40 °C)
Additional advice	If possible, to be incorporated at an early stage during production. pH, temperature and redox conditions are to be taken into consideration. Avoid alkaline pre-solutions. Cleaning of equipment is possible by rinsing with water.

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>Enterobacter aerogenes</i>	0.006	<i>Bacillus subtilis</i>	0.025	<i>Candida albicans</i>	0.025
<i>Escherichia coli</i>	0.012	<i>Staphylococcus aureus</i>	0.050	<i>Rhodotorula spp.</i>	0.012
<i>Proteus mirabilis</i>	0.006	<i>Streptococcus faecium</i>	0.050	<i>Saccharomyces cerevisiae</i>	0.025
<i>Pseudomonas aeruginosa</i>	0.012	Sulphate-reducing bacteria	MIC	Moulds	MIC
<i>Pseudomonas fluorescens</i>	0.006	<i>Desulfovibrio desulfuricans</i>	0.012	<i>Alternaria spp.</i>	0.012
				<i>Aspergillus niger</i>	0.025
				<i>Fusarium oxysporum</i>	0.006
				<i>Penicillium spp.</i>	0.006
				<i>Trichoderma virens</i>	0.025

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Compatibility*		
	compatible	to be avoided
concentrate	plastics, sealants, high-alloyed stainless steel (e. g. 1.4571)	unprotected steel, brass, copper
aqueous dilution (0.2 %)	No significant difference to water	Water incompatible materials

*Compatibility has to be proved in each case

Labelling	
R-phrases(s)	R22, R34, R43, R51/53
S-phrases(s)	S24, 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.

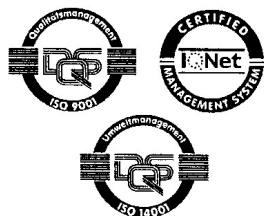
Environmental information
 parmetol® DF 35 contains only biodegradable components. Dilutions of parmetol® DF 35 do not normally interfere with the operation of waste water treatment plants. The canisters and drums used by schülke are made of polyethylene (HDPE) and are labelled accordingly. The 1000 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)
TSCA (USA)*
ECL (Korea)
DSL / NDSL (Canada)*
ENCS (Japan)*
PICCS (Philippines)
AICS (Australia)
IECSC (China)
BfR XIV, XXXVI
* 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.

Ecolabel			
	Basic criteria	Product type	max. use concentration
Blue Angel (Germany)	RAL-UZ-102	low-emission wall paints	0.04 %
European Flower	K(2008)4453	indoor paints and varnishes	0.004 %

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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. 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.

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