

# Surfactants and Emulsifiers



**WALL** CHEMIE

Delivery Program

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# INTRODUCTION

## Active all around the world

Individual & tailor-made solutions

Wall Chemie GmbH was established in Kempen (Germany) in 1984. Since then it is managed by the family in the same spirit as the founder wanted it to be.

As manufacturer of surfactants, Wall Chemie is focussing on supporting its customers by combining a broad standard product range with tailor-made solutions. Additional to this wide product range, we offer our customers, operating in the international market, customized solutions being a combination of our technology and e.g. our logistic services. This development is done in joint operation with our customers.

## Key Technology

The technical heart of our production is the manufacture of non-ionic surfactants based on among others but not limited to fatty alcohols, fatty acids, triglycerides and fatty amines as starters for alkoxylation.

Also very important is our technology and knowledge of e.g. anionic surfactants such as phosphoric acid esters and sulfosuccinates. Available are also fatty acid (alkanol) amides and fatty acid esters. In some cases a choice can be made between using raw materials from renewable or petrochemical sources. This allows our customers to diversify depending on the environmental impact and economical situation.

## Custom-made solutions

Working with Wall Chemie will always be useful. Talk to us if you have any questions or if you are looking for customized solutions to your challenges. Our employees are happy to advise you and they will support you during the entire process from the development of your special product to the test phase until the application is finished.

## International network

To conduct business successfully at an international level, Wall Chemie founded subsidiaries, joint ventures and partnerships with third parties. Among them is Wall Chemie Brasil in Novo Hamburgo, responsible for the surfactants sales to South American market. Prosupply BV in Emmen (The Netherlands) sells our products as emulsifiers for animal feed and food products. Wall Chemie BV based in Enschede (The Netherlands) is responsible for the commercial activities in among other the Benelux, France, Spain, Italy, Portugal, Great Britain, Turkey, Middle East and Africa. They also sell products from Unger Fabrikker SA from Norway.

Carpetex Lederhilfsmittel GmbH headquartered in Kempen (Germany) and Carpetex Brasil are daughter companies specialized in auxiliaries for the leather treatment.

# ANIONIC SURFACTANTS

## Alkylbenzene sulfonates

Trade Name	Chemical Name	Active-matter (%)	Form (20°C)	HLB Value	Application
<b>WALLISAP AS 98</b>	n-C <sub>10</sub> -C <sub>13</sub> -Alkylbenzene sulfonic acid	appr. 98	liquid	---	Universal surfactants for liquid and powder washing-, cleaning and textil auxiliaries.
<b>WALLISAP AE 50</b>	n-C <sub>10</sub> -C <sub>13</sub> -Alkylbenzene sulfonate, Na-salt	appr. 50	pasty	---	
<b>WALLISAP AT 50</b>	n-C <sub>10</sub> -C <sub>13</sub> - Alkylbenzene sulfonate, TEA-salt	appr. 50	liquid	---	

# ANIONIC SURFACTANTS

## Sulfosuccinates

Trade Name	Chemical Name	Active-matter (%)	Form (20°C)	HLB Value	Application
<b>WALLASOL L 29</b>	C <sub>12</sub> -C <sub>16</sub> -Alcoholpoly-glycol ether sulfosuccinate Na-salt	appr. 33	liquid	---	Surfactant for mild, liquid detergents
<b>WALLASOL DIO 60 PG</b>	Diisooctyl sulfosuccinate Na-salt, contains 1,2-propylene glycol	appr. 60	liquid	---	Rapid wetteners for leather-, paper- and textile auxiliaries.
<b>WALLASOL DIO 70</b>	Diisooctyl sulfosuccinate Na-salt, contains ethanol	appr. 70	liquid	---	

# ANIONIC SURFACTANTS

## Phosphoric Acid Esters

Trade Name	Chemical Name	Active-matter (%)	Form (20°C)	HLB Value	Application
<b>WALLIPHOS TRP 40</b>	i-C <sub>13</sub> -Alcohol polyglycol ether phosphoric acid ester	appr. 100	liquid	---	Low foam wetting agents for neutral and weak alkaline cleaners.
<b>WALLIPHOS EHDP</b>	Ethylhexanol phosphoric acid ester	appr. 100	liquid	---	Coemulsifier for polymerizations.
<b>WALLIPHOS EHDP 30</b>	Ethylhexanol polyglycol ether phosphoric acid ester	appr. 100	liquid	---	
<b>WALLIPHOS EHDP 30 Na 85 %</b>	Ethylhexanol polyglycol ether phosphoric acid ester, neutralized	appr. 85	liquid	---	
<b>WALLIPHOS NODP 60</b>	Nonylphenol polyglycol ether phosphoric acid ester	appr. 100	liquid	---	
<b>WALLIPHOS NOP 90</b>	Nonylphenol polyglycol ether phosphoric acid ester	appr. 100	liquid	---	

# NONIONIC SURFACTANTS

## Lauryl-Myristyl alcohol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud-point (°C)	Form (20°C)	HLB Value	Application
<b>WALLOXEN LM 20</b>	appr. 2 mol	appr. 40 <sup>1)</sup>	liquid	6,1	Raw material for ethersulfates, etherphosphates and sulfosuccinates. Oil soluble emulsifiers.
<b>WALLOXEN LM 30</b>	appr. 3 mol	appr. 52 <sup>1)</sup>	liquid	8	
<b>WALLOXEN LM 40</b>	appr. 4 mol	appr. 62 <sup>1)</sup>	liquid	9,4	
<b>WALLOXEN LM 50</b>	appr. 5 mol	appr. 69 <sup>1)</sup>	liquid	10,5	Dispersing-, wetting-, washing agents and detergents.
<b>WALLOXEN LM 60</b>	appr. 6 mol	appr. 73 <sup>1)</sup>	liquid – pasty	11,4	
<b>WALLOXEN LM 70 *</b>	appr. 7 mol	appr. 55 <sup>2)</sup>	liquid – pasty	12,1	
<b>WALLOXEN LM 90 *</b>	appr. 9 mol	appr. 81 <sup>2)</sup>	liquid - pasty	13,3	Emulsifiers für O/W-emulsions and polymerisations.
<b>WALLOXEN LM 100 *</b>	appr. 10 mol	appr. 61 <sup>3)</sup>	pasty	13,8	
<b>WALLOXEN LM 120 *</b>	appr. 12 mol	appr. 68 <sup>3)</sup>	pasty - solid	14,5	
<b>WALLOXEN LM 200 *</b>	appr. 20 mol	appr. 77 <sup>3)</sup>	solid	16,3	
<b>WALLOXEN LM 300 *</b>	appr. 30 mol	appr. 79 <sup>3)</sup>	solid	17,4	

# NONIONIC SURFACTANTS

## Isodecyl alcohol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud point (°C)	Form (20°C)	HLB Value	Application
<b>WALLOXEN ID 30</b>	appr. 3 mol	ca. 43 <sup>1)</sup>	liquid	9,1	Oil soluble emulsifier.
<b>WALLOXEN ID 50</b>	appr. 5 mol	ca. 67 <sup>1)</sup>	liquid	11,6	Dispersing-, wetting-, washing and cleaning agents.
<b>WALLOXEN ID 60</b>	appr. 6 mol	ca. 52 <sup>2)</sup>	liquid	12,5	
<b>WALLOXEN ID 70 *</b>	appr. 7 mol	ca. 61 <sup>2)</sup>	liquid	13,2	
<b>WALLOXEN ID 80 *</b>	appr. 8 mol	ca. 81 <sup>2)</sup>	liquid	13,8	
<b>WALLOXEN ID 110 *</b>	appr. 11 mol	ca. 64 <sup>3)</sup>	liquid – pasty	15,1	
<b>WALLOXEN ID 200 *</b>	appr. 20 mol	ca. 72 <sup>3)</sup>	liquid - pasty	16,9	



# NONIONIC SURFACTANTS

## Isotridecyl alcohol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud Point (°C)	Form (20°C)	HLB Value	Application
WALLOXEN TR 30	appr. 3 mol	appr. 50 <sup>4)</sup>	liquid	8	Oil soluble emulsifiers. Emulsifiers for agriculture protection formulations.
WALLOXEN TR 40	appr. 4 mol	appr. 57 <sup>4)</sup>	liquid	9,4	
WALLOXEN TR 50	appr. 5 mol	appr. 66 <sup>4)</sup>	liquid	10,6	Dispersing-, wetting-, washing-agents and detergents.
WALLOXEN TR 60	appr. 6 mol	appr. 71 <sup>4)</sup>	liquid	11,5	
WALLOXEN TR 70 *	appr. 7 mol	appr. 75 <sup>4)</sup>	liquid	12,2	
WALLOXEN TR 80 *	appr. 8 mol	appr. 44 <sup>2)</sup>	liquid	12,8	Universal surfactants for the formulation of leather-, textile- and paper auxiliaries.
WALLOXEN TR 90 *	appr. 9 mol	appr. 58 <sup>2)</sup>	liquid	13,4	
WALLOXEN TR 100 *	appr. 10 mol	appr. 72 <sup>2)</sup>	liquid – pasty	13,8	
WALLOXEN TR 120 *	appr. 12 mol	appr. 56 <sup>3)</sup>	pasty	14,6	
WALLOXEN TR 150 *	appr. 15 mol	appr. 66 <sup>3)</sup>	solid	15,4	
WALLOXEN TR 200	appr. 20 mol	appr. 72 <sup>3)</sup>	solid	16,3	

# NONIONIC SURFACTANTS

## Oleyl-Cetylalcohol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud Point (°C)	Form (20°C)	HLB Value	Application
WALLOXEN SH 20 PF	appr. 2 mol	appr. 35 <sup>1)</sup>	liquid	5,1	Emulsifier for mineral oil.
WALLOXEN SH 55/95 PF	appr. 5,5 mol	appr. 71 <sup>1)</sup>	liquid	9,6	
WALLOXEN SP 20 PF	appr. 2 mol	appr. 40 <sup>1)</sup>	liquid	5,1	Emulsifier for cooling lubricants and for drilling and cutting oils.
WALLOXEN SP 50 PF	appr. 5 mol	appr. 70 <sup>1)</sup>	liquid – pasty	9,2	
WALLOXEN SP 200 PF	appr. 20 mol	appr. 74 <sup>3)</sup>	solid	15,4	
WALLOXEN SP 200/70 PF	appr. 20 mol	---	liquid	---	
WALLOXEN SP 300 PF	appr. 30 mol	appr. 77 <sup>3)</sup>	solid	16,7	
WALLOXEN SP 300/70 PF	appr. 30 mol	---	liquid	---	

## Cetyl-Stearyl alcohol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud point (°C)	Form (20°C)	HLB Value	Application
WALLOXEN T 50	appr. 5 mol	appr. 73 <sup>4)</sup>	solid	9,2	Surfactants for powdery washing agents and detergents. Carrier for solid detergents (rim blocks). Carrier for enzymes.
WALLOXEN T 60	appr. 6 mol	appr. 77 <sup>4)</sup>	solid	10,1	
WALLOXEN T 110	appr. 11 mol	appr. 85 <sup>2)</sup>	solid	13	
WALLOXEN T 250	appr. 25 mol	appr. 76 <sup>3)</sup>	solid	16,2	

# NONIONIC SURFACTANTS

## Nonylphenol polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud point (°C)	Form (20°C)	HLB Value	Application
<b>WALLOXEN NO 40</b>	appr. 4 mol	appr. 47 <sup>1)</sup>	liquid	8,7	Emulsifiers for mineral oil. Emulsifiers in agriculture protection formulations.
<b>WALLOXEN NO 60</b>	appr. 6 mol	appr. 63 <sup>1)</sup>	liquid	10,7	
<b>WALLOXEN NO 90</b>	appr. 9 mol	appr. 53 <sup>2)</sup>	liquid	12,7	Dispersing-, wetting agents.
<b>WALLOXEN NO 100</b>	appr. 10 mol	appr. 61 <sup>2)</sup>	liquid	13,1	
<b>WALLOXEN NO 150</b>	appr. 15 mol	appr. 66 <sup>3)</sup>	liquid	---	Emulsifier for emulsion polymerisation.

## Ethylhexyl polyglycol ether

Trade Name	Degree of Ethoxylation	Cloud point (°C)	Form (20°C)	HLB-value	Application
<b>WALLOXEN EH 80/80</b>	appr. 8 mol	appr. 44 <sup>3)</sup>	liquid	14,6	Emulsifier for metal treatment agents.
<b>WALLOXEN EH 150</b>	appr. 15 mol	appr. 81 <sup>5)</sup>	solid	16,7	
<b>WALLOXEN EH 150/80</b>	appr. 15 mol	appr. 81 <sup>5)</sup>	liquid	16,7	

# NONIONIC SURFACTANTS

## Castor oil polyglycol ether

Trade Name	Degree of Ethoxylation	Saponification Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN RO 30	appr. 3 mol	appr. 152	liquid	2,7	Emulsifiers for mineral oil.
WALLOXEN RO 50	appr. 5 mol	appr. 143	liquid	3,7	
WALLOXEN RO 110	appr. 11 mol	appr. 120	liquid	6,9	Emulsifiers for cooling lubricants and for drilling and cutting oil.
WALLOXEN RO 150	appr. 15 mol	appr. 107	liquid	8,3	
WALLOXEN RO 180 G	appr. 18 mol	appr. 90	liquid	10,5	
WALLOXEN RO 350	appr. 35 mol	appr. 65	liquid	12,2	Solubilizer.

## Hydrogenated castor oil polyglycol ether

Trade Name	Degree of Ethoxylation	Saponification Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN HRO 160	appr. 16 mol	appr. 100	liquid	8,9	Emulsifiers and solubilizers.
WALLOXEN HRO 250	appr. 25 mol	appr. 80	liquid	10,3	
WALLOXEN HRO 400 *	appr. 40 mol	appr. 60	pasty	12,9	

# NONIONIC SURFACTANTS

## Oleic fatty acid polyglycol ester

Trade Name	Degree of Ethoxylation	Saponification number (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN OFS 60	appr. 6 mol	appr. 100	liquid	9,9	Emulsifier for cooling lubricants and for drilling and cutting oils.
WALLOXEN OFS 85	appr. 8,5 mol	appr. 85	liquid	11,3	
WALLOXEN OFS 100	appr. 10 mol	appr. 75	liquid	12,4	
WALLOXEN OFS 120	appr. 12 mol	appr. 65	liquid	13,4	

## Special Ethoxylated Products

Trade Name	Degree of Ethoxylation	Base	Form (20°C)	HLB-value	Application
WALLIMUL RFS 3085	---	Ethoxylated castor oil, ethoxylated fatty acid	liquid	7,8	Emulsifier for cooling lubricants and for drilling and cutting oils.
MERPIMUL 73270 IP QL	---	Ethoxylated soybean oil	liquid	12	Emulsifiers for several O/W-systems

# CATIONIC SURFACTANTS

## Oleylamine polyglycol ether

Trade Name	Degree of Ethoxylation	Amine Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN OA 20	appr. 2 mol	appr. 160	liquid	10	Emulsifier for mineral oil.
WALLOXEN OA 100	appr. 10 mol	appr. 80	liquid	---	Surfactants for acid cleaners, textile- and leather auxiliaries, dyeing assistants.

## Stearylamine polyglycol ether

Trade Name	Degree of Ethoxylation	Amine Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN STA 150	appr. 15 mol	appr. 61	liquid	---	Surfactants for the formulation of leather-, textile- and dyeing auxiliaries. Emulsifiers for water based adhesives
WALLOXEN STA 250	appr. 25 mol	appr. 41	pasty	---	

## Cocoamine polyglycol ether

Trade Name	Degree of Ethoxylation	Amine Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN KA 50	appr. 5 mol	appr. 133	liquid	---	Surfactants for the formulation of mould release agents.
WALLOXEN KA 100	appr. 10 mol	appr. 87	liquid	---	

## Tallow amine polyglycol ether

Trade Name	Degree of Ethoxylation	Amine Value (mg KOH/g)	Form (20°C)	HLB Value	Application
WALLOXEN TA 20	ca. 2 mol	> 158	liquid	---	Surfactants for the production of textile auxiliaries.
WALLOXEN TA 100	ca. 10 mol	appr. 77	liquid	---	
WALLOXEN TA 200	ca. 20 mol	appr. 48	liquid	---	

# OTHER PRODUCTS

## Fatty acid alkanol amides

Trade Name	Chemical Name	Content of Amide (%)	Form (20°C)	HLB Value	Application
<b>WALLAMID KD 11</b>	Coconut fatty acid diethanolamide	appr. 85	liquid	---	Thickener and refatting agent for shampoo, foam bath and shower bath. Agent to slow down solubilisation in rim blocks.
<b>WALLAMID SD</b>	Soybean oil fatty acid diethanolamide	appr. 85	liquid	---	
<b>WALLAMID OD/E</b>	Oleic fatty acid diethanolamide	appr. 90	liquid	---	Coagent for car cleaning / car care products.
<b>WALLAMID KM</b>	Coconut fatty acid monoethanolamide	appr. 95	solid	---	

# SURFACTANTS AND EMULSIFIERS FOR COSMETIC APPLICATION

Trade Name	INCI - Name	Active-matter (%)	Form (20°C)	HLB-value	Application
<b>WALLAMID KD 11</b>	Cocamide DEA	appr. 85	liquid	---	Surfactants for the formulation of baby shampoo, foam bath and mild detergents.
<b>MERPOXEN LM 30</b>	Laureth-3	appr. 100	liquid	8	Thickener for formulations based on ethersulfates.
<b>MERPOXEN LM 40</b>	Laureth-4	appr. 100	liquid	9,4	
<b>MERPOXEN RO 350</b>	PEG-35 Castor Oil	---	liquid	appr. 14	Solubilizers and emulsifiers for cosmetic formulations.
<b>MERPOXEN HRO 400/90 PG</b>	PEG-40 hydrogenated Castor Oil + 1,2-propylenglycol / water	---	liquid	appr. 16	
<b>MERPOXEN SML 200</b>	Polysorbate 20	---	liquid	appr. 17	
<b>MERPOXEN SMS 200</b>	Polysorbate 60	---	solid	appr. 15	
<b>MERPOXEN SMO 200</b>	Polysorbate 80	---	liquid	appr. 15	



# SURFACTANTS AND EMULSIFIERS FOR LUBRICANT APPLICATION

Trade Name	Degree of Ethoxylation	Saponification Value (mg KOH/g)	Cloud point (°C)	Form (20°C)	HLB Value	Application
<b>WALLOXEN RO 30</b>	appr. 3 mol	appr. 152	---	liquid	2,7	Emulsifiers for mineral oil.
<b>WALLOXEN RO 50</b>	appr. 5 mol	appr. 143	---	liquid	3,7	
<b>WALLOXEN RO 110</b>	appr. 11 mol	appr. 120	---	liquid	6,9	Emulsifiers for cooling lubricants and for drilling and cutting oils.
<b>WALLOXEN RO 150</b>	appr. 15 mol	appr. 107	---	liquid	8,3	
<b>WALLOXEN RO 180 G</b>	appr. 18 mol	appr. 90	---	liquid	9,4	
<b>WALLIMUL RFS 3085</b>	---	appr. 123	---	liquid	7,8	
<b>WALLOXEN SH 20 PF</b>	appr. 2 mol	---	appr. 35 <sup>1)</sup>	liquid	5,1	Emulsifiers for mineral oils.
<b>WALLOXEN SH 55/95 PF</b>	appr. 5,5 mol	---	appr. 71 <sup>1)</sup>	liquid	9,6	
<b>WALLOXEN SP 20 PF</b>	appr. 2 mol	---	appr. 40 <sup>1)</sup>	liquid	5,1	
<b>WALLOXEN SP 50 PF</b>	ca. 5 mol	---	appr. 70 <sup>1)</sup>	liquid – pasty	9,2	
<b>WALLOXEN SP 200 PF</b>	ca. 20 mol	---	appr. 74 <sup>3)</sup>	solid	15,4	Emulsifier for cooling lubricants and for drilling and cutting oils.

# SURFACTANTS AND EMULSIFIERS FOR WASHING AND CLEANING APPLICATION

Trade Name	Chemical Name	Active-matter (%)	Form (20°C)	HLB Value	Application
<b>WALLISAP AE 50</b>	n-C <sub>10</sub> -C <sub>13</sub> -Alkylbenzene sulfonate, Na-salt	appr. 50	pasty	---	Universal surfactant for liquid and powdery auxiliaries.
<b>WALLASOL L 29</b>	C <sub>12</sub> -C <sub>14</sub> -alcoholpolyglycol ether sulfosuccinat, Na-salt	appr. 33	liquid	---	Detergent for babyshampoo, foam bath and mild liquid detergent.
<b>WALLASOL DIO 60 PG</b>	Diisooctyl sulfosuccinate Na-salt, contains 1,2-propylenglycol	appr. 60	liquid	---	Rapid wettener for leather-, paper- and textile auxiliaries.
<b>WALLAMID KD 11</b>	Coconut fatty acid diethanolamide	appr. 85	liquid	---	Thickener and superfatting agent.

Trade Name	Degree of Ethoxylation	Cloud point (°C)	Form (20°C)	HLB Value	Application
<b>WALLOXEN LM 20</b>	appr. 2 mol	appr. 40 <sup>1)</sup>	liquid	6,1	Raw material for ether-sulfates, etherphosphates and sulfosuccinates. Oil soluble emulsifiers.
<b>WALLOXEN LM 30</b>	appr. 3 mol	appr. 52 <sup>1)</sup>	liquid	8	
<b>WALLOXEN LM 40</b>	appr. 4 mol	appr. 62 <sup>1)</sup>	liquid	9,4	
<b>WALLOXEN LM 90 *</b>	appr. 9 mol	appr. 81 <sup>2)</sup>	liquid – pasty	13,3	Dispersing-, wetting-, washing agent and detergent.
<b>WALLOXEN LM 120 *</b>	appr. 12 mol	appr. 68 <sup>3)</sup>	pasty - solid	14,5	Emulsifier for W/O emulsions.
<b>WALLOXEN ID 50</b>	appr. 5 mol	appr. 67 <sup>1)</sup>	liquid	11,6	Dispersing-, wetting-, washing and cleaning agents.
<b>WALLOXEN ID 70 *</b>	appr. 7 mol	appr. 61 <sup>2)</sup>	liquid	13,2	
<b>WALLOXEN TR 70 *</b>	appr. 7 mol	appr. 75 <sup>4)</sup>	liquid	12,2	Dispersing-, wetting-, washing- agents.
<b>WALLOXEN TR 90 *</b>	appr. 9 mol	appr. 58 <sup>2)</sup>	liquid	13,4	

# EMULSIFIERS FOR FOOD AND FEED APPLICATION

Trade Name	Degree of Ethoxylation	Saponification Value (mg KOH/g)	Form (20°C)	HLB Value	Application
<b>MERPOXEN RO 110 QL</b>	appr. 11 mol	appr. 120	liquid	6,9	Use in feed and food products.
<b>MERPOXEN RO 150 QL</b>	appr. 15 mol	appr. 107	liquid	8,3	
<b>MERPOXEN RO 180 G QL</b>	appr. 18 mol	appr. 93	liquid	appr. 10	

Trade Name	INCI - Name	Active-matter (%)	Form (20°C)	HLB Value	Application
<b>MERPOXEN SML 200 QL</b>	Polysorbate 20	---	liquid	appr. 17	Use in feed and food products.
<b>MERPOXEN SMS 200 QL</b>	Polysorbate 60	---	solid	appr. 15	
<b>MERPOXEN SMO 200 QL</b>	Polysorbate 80	---	liquid	appr. 15	

# CAPTION

## Additional Information to the products

\* These products can also be delivered as aqueous solution.

## Cloud point measuring methods

- 1) 5 g in 25 ml 25 % BDG-solution
- 2) 1 % in water
- 3) 1 % in 10 % NaCl-solution
- 4) 10% in 25% BDG-solution
- 5) 1% in 5% NaCl-solution
- 6) 0,5% in 10% NaCl-solution

## Law information

Suggestions for the use and application of our products and guide formulae are given to the best of our knowledge and information, without obligation. Every user of our products is responsible as regards observation of all legal regulations including patent laws.

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