TEXTILE AUXILIARIES – OUR COMPETENCE FOR YOUR SUCCESS

CORE RANGE CATALOGUE OF THE CHT GROUP
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUR TEXTILE COMPETENCE</td>
<td>4</td>
</tr>
<tr>
<td>PRETREATMENT</td>
<td>5</td>
</tr>
<tr>
<td>DYEING</td>
<td>20</td>
</tr>
<tr>
<td>FINISHING AGENTS</td>
<td>35</td>
</tr>
<tr>
<td>FIBRE AUXILIARIES</td>
<td>46</td>
</tr>
<tr>
<td>COATING</td>
<td>57</td>
</tr>
<tr>
<td>CHT GROUP WORLDWIDE</td>
<td>71</td>
</tr>
</tbody>
</table>
With this brochure we would like to give you an overview of our global core product range for textile applications in the fields of pretreatment, dyeing, finishing, fibre auxiliaries and coating.

Modern demands on textiles and on efficient and ecological production processes require new chemical products which meet these demands. Within the CHT Group our colleagues of Research & Development and those of the Application Technique try every day to improve the chemicals or process technology. We revise this brochure regularly and republish it together with the latest developments every two years.

We want to draw your particular attention to the numerous product innovations in this catalogue which enabled us to make processes more efficient and more economic maintaining simultaneously the high process safety in order to produce final products of highest quality under ecological conditions.

This overview does not include products for continuous printing and for screen printing. These products are listed in separate brochures. Product ranges which are locally offered by our affiliates as well as the colour charts and overviews concerning the dyes offered by CHT Switzerland AG are not stated either.
OUR TEXTILE COMPETENCE

The CHT Group: Partner of the textile industry

The CHT Group is a globally operating group of companies and manufacturer of specialty chemicals with its own production, sales and distribution sites in all important textile countries. Our corporate action is focussed on proximity to our customers, comprehensive service, excellent product quality as well as a consistent effort for further product development. As partner of the textile industry we offer an extensive range of high quality auxiliaries and colours for the whole textile chain – our products will accompany you from fibre to ready-made textile.

Our textile competence is based on years of experience and a comprehensive knowledge of our staff members. Our customers profit from this throughout all finishing steps. For each customer in each segment system solutions are worked out individually being adapted to any specific production process. With highly qualified technicians we make points by directly responding to specific demands in all our markets. Our competence will help you succeed in business.

In addition to traditional textile finishing we see ourselves as strategic partners for your future development. Our highly qualified staff face daily new demands in order to be one step ahead of upcoming market needs and to be able to consistently provide you with new ideas and stimuli. In the field of technical textiles we already today perform dynamic research and development work to find solutions for your tomorrows’ demands.

Besides ecological systems and products sustainability is first of all found in the economy of production processes. Together with you we always work on optimisation of finishing processes and applied chemicals. The benefit for all of us is a saving of all resources such as water, energy, time and cost.

The sense of responsibility of the CHT Group is also reflected by its commitment to act in terms of the initiative for “Responsible Care”. We are supporters of bluesign and ÖKOTEX® Standard 100 as well as the GOTS certification. One of our key projects is the fulfilment of REACH regulation according to the back ground of the new European Chemicals Act.
### Pretreatment

#### Desizing Agents and Enzymes

<table>
<thead>
<tr>
<th>Desizing at:</th>
<th>Ionic Character</th>
<th>Appearance</th>
<th>40 – 70°C</th>
<th>70 – 98°C</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEISOL DO CONC.</td>
<td>o-pow</td>
<td>x</td>
<td></td>
<td></td>
<td>desizing agent with oxidative effect, suitable for alkaline pretreatment and cold bleach</td>
</tr>
<tr>
<td>BEISOL PES</td>
<td>c-liq</td>
<td></td>
<td></td>
<td></td>
<td>special product for removing PES size in alkaline and strongly alkaline treatment liquors and for peeling PES</td>
</tr>
<tr>
<td>BEISOL PRO</td>
<td>o-liq</td>
<td></td>
<td></td>
<td></td>
<td>enzyme mix with best effectiveness at pH 8 – 9, giving an improved absorbancy by its cleaning effect, and depending on the kind of cotton an alkaline scouring becomes dispensable</td>
</tr>
<tr>
<td>BEISOL SED</td>
<td>o-liq</td>
<td>x</td>
<td>x</td>
<td></td>
<td>highly concentrated bacteria amylase for all temperature ranges</td>
</tr>
<tr>
<td>BEISOL T 2090</td>
<td>o-liq</td>
<td>x</td>
<td>x</td>
<td></td>
<td>universal bacteria amylase for all temperature ranges</td>
</tr>
</tbody>
</table>

#### Sequestering Agents

<table>
<thead>
<tr>
<th></th>
<th>Particularly against alkaline earths</th>
<th>Particularly against heavy metals</th>
<th>High silicate dispersing power</th>
<th>For dyeing liquors with metalliferous dyes</th>
<th>Acid demineralisation</th>
<th>Alkaline scouring</th>
<th>Peroxide bleach</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEIXON AB 200%</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x with acid</td>
<td>x</td>
<td></td>
<td></td>
<td>saccharide/acrylate copolymer, biodegradable</td>
</tr>
<tr>
<td>BEIXON Q</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>polycarboxylic acids and special polymers</td>
</tr>
<tr>
<td>HEPTOL B 81 200%</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>acrylate copolymer, concentrated product</td>
</tr>
<tr>
<td>HEPTOL EMG</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>phosphonates</td>
</tr>
<tr>
<td>HEPTOL ESW</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>phosphonates</td>
</tr>
<tr>
<td>HEPTOL KEB</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>phosphonates</td>
</tr>
<tr>
<td>HEPTOL NWS</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>polymeric carboxylic acid, containing polyphosphate</td>
</tr>
<tr>
<td>HEPTOL SF 4</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>phosphonates</td>
</tr>
</tbody>
</table>
## BLEACHING AGENTS

### STABILISERS FOR THE PEROXIDE BLEACH OF CELLULOSE FIBRES AND THEIR BLENDS

<table>
<thead>
<tr>
<th></th>
<th>Continuous process</th>
<th>Discontinuous processes</th>
<th>Cold bleach pad steam</th>
<th>Under-liquor systems</th>
<th>For Co with high degree of hardness</th>
<th>Silicate-free processes</th>
<th>Processes containing silicate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ionic character</td>
<td></td>
<td>Pad roll</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appearance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTAVAN GAL</td>
<td>a-liq</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CONTAVAN ICE</td>
<td>a-liq</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CONTAVAN TIG</td>
<td>a-liq</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CONTAVAN VAN</td>
<td>a-liq</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>TUBOTEX NCD</td>
<td>a-pow</td>
<td>x</td>
<td></td>
<td>combination product, contains all necessary bleaching chemicals except peroxide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VARIO BLEACH 3E</td>
<td>a-liq</td>
<td>x</td>
<td></td>
<td>temperature range 60 – 110 °C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISCAVIN CCP*</td>
<td>a-liq</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISCAVIN GFN**</td>
<td>a/n-liq</td>
<td>x</td>
<td></td>
<td>peroxide stabiliser containing surfactant with sequestering power</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* surfactant-containing peroxide stabilizing agent with sequestering properties
** also for the one-bath bleaching and dyeing with direct dyes

### STABILISERS FOR THE CHLORITE BLEACH

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appearance</td>
<td></td>
</tr>
<tr>
<td>CONTAVAN CLO PLV</td>
<td>a-pow</td>
<td>buffer mix</td>
</tr>
</tbody>
</table>

### ACTIVATORS FOR THE NEUTRAL BLEACH

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appearance</td>
<td></td>
</tr>
<tr>
<td>CHT-AKTIVATOR FBA</td>
<td>o-liq</td>
<td>activator for the neutral peroxide bleach</td>
</tr>
<tr>
<td>CHT-PUFFER FBA</td>
<td>o-liq</td>
<td>buffering agent for optimising the bleach with CHT-AKTIVATOR FBA</td>
</tr>
</tbody>
</table>
## SCOURING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBITOL AS 6</td>
<td>a·liq</td>
<td>anionic wetting agent and detergent very stable to alkali</td>
</tr>
</tbody>
</table>

## WASHING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Oil removal</th>
<th>Setting phase*</th>
<th>NaOH stability</th>
<th>Discontinuous process</th>
<th>Continuous process</th>
<th>Special applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>FELOSAN FDO NEU</td>
<td>n</td>
<td>xx</td>
<td>yes</td>
<td>x</td>
<td>x</td>
<td>special product for oil removal</td>
</tr>
<tr>
<td>FELOSAN FOX</td>
<td>n</td>
<td>x</td>
<td>no</td>
<td>x</td>
<td>xx</td>
<td>low foaming detergent</td>
</tr>
<tr>
<td>FELOSAN JET</td>
<td>a/n</td>
<td>x</td>
<td>yes</td>
<td>x</td>
<td>x</td>
<td>universal washing agent</td>
</tr>
<tr>
<td>FELOSAN NFG</td>
<td>n</td>
<td>xx</td>
<td>no</td>
<td>xx</td>
<td>x</td>
<td>low foaming washing agent especially for discontinuous processes</td>
</tr>
<tr>
<td>FELOSAN NKB</td>
<td>n</td>
<td>xx</td>
<td>no</td>
<td>x</td>
<td>x</td>
<td>low foaming washing agent especially for continuous processes</td>
</tr>
<tr>
<td>FELOSAN RG-N</td>
<td>n</td>
<td>xx</td>
<td>yes</td>
<td>x</td>
<td>x</td>
<td>universal washing agent with excellent oil emulsifying power</td>
</tr>
<tr>
<td>FELOSAN RIZ 40</td>
<td>n</td>
<td>xx</td>
<td>no</td>
<td>x</td>
<td>x</td>
<td>emulsifier and washing agent for spin finishes</td>
</tr>
<tr>
<td>FELOSAN RNF</td>
<td>n</td>
<td>x</td>
<td>no</td>
<td>xx</td>
<td></td>
<td>also applicable as wetting agent for carbonizing</td>
</tr>
</tbody>
</table>

* Important on dosage plants with water supply when rinsing the pipeline.  xx recommended – very good.
   x suitable – good.
### STAIN REMOVERS

<table>
<thead>
<tr>
<th>Ionic character Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>FELOSAN FDO NEU</td>
<td>n·fl terpene hydrocarbon with emulsifiers</td>
</tr>
<tr>
<td>FELOSAN RG-N</td>
<td>n·fl fatty alcohol ethoxylates</td>
</tr>
</tbody>
</table>

### MERCERISATION AND CAUSTICISATION AGENTS

<table>
<thead>
<tr>
<th>Ionic character Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBITOL HPM</td>
<td>a·liq sulphated alcohols, wetting agent for mercerisation and caustic treatment low foaming, suitable for caustic recovery</td>
</tr>
</tbody>
</table>

### CARBONISING AGENTS

<table>
<thead>
<tr>
<th>Ionic character Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>FELOSAN RNF</td>
<td>n·liq modified ethoxylates, low foaming wetting and washing agent</td>
</tr>
</tbody>
</table>

### FIBRE PROTECTIVE AGENTS

<table>
<thead>
<tr>
<th>Ionic character Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBOSET DAP</td>
<td>n·liq surfactant/antioxidant to reduce the tendency to yellow polyamide fibres during thermofixing</td>
</tr>
<tr>
<td>TUBOSET LVI</td>
<td>a·liq special product to prevent phenolic yellowing</td>
</tr>
<tr>
<td>TUBOSET NOX 300</td>
<td>o·liq special product for minimizing nitrogen oxide yellowing of optically brightened and dyed cellulose articles</td>
</tr>
<tr>
<td>TUBOSET PAP</td>
<td>n·liq fibre protection agent to prevent the oxidative damaging of PA fibres during a peroxide bleach</td>
</tr>
<tr>
<td>TUBOSET SAM</td>
<td>n·pow antioxidant blocker for thermofixing and moulding of polyamide and its blend</td>
</tr>
<tr>
<td>TUBOSET SML</td>
<td>n·liq antioxidant to reduce the yellowing tendency during heatsetting and moulding of polyamide</td>
</tr>
</tbody>
</table>
### OPTICAL BRIGHTENERS

<table>
<thead>
<tr>
<th>Fibres</th>
<th>Application and properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ionic character appearance</td>
<td>CEL</td>
</tr>
<tr>
<td>TUBOBLANC BL*</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC COL</td>
<td>a-pow</td>
</tr>
<tr>
<td>TUBOBLANC CRL**</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC DIK</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC EBF</td>
<td>n-liq</td>
</tr>
<tr>
<td>TUBOBLANC ERN</td>
<td>n-liq</td>
</tr>
<tr>
<td>TUBOBLANC HA</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC HA-D3</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC HA-S4</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC HM-PD</td>
<td>a-pow</td>
</tr>
<tr>
<td>TUBOBLANC HV</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC HV-S4</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC MA</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC PE-R</td>
<td>n-liq</td>
</tr>
<tr>
<td>TUBOBLANC PT-B</td>
<td>n-liq</td>
</tr>
<tr>
<td>TUBOBLANC PT-0</td>
<td>n-liq</td>
</tr>
<tr>
<td>TUBOBLANC RBV</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC RUB</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC STU</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC STU-B</td>
<td>a-liq</td>
</tr>
<tr>
<td>TUBOBLANC 2B Conc.</td>
<td>a-pow</td>
</tr>
</tbody>
</table>

---

1. addition of salt for exhaust process
2. suitable to a limited extent, pretrials are required
3. with PES/cellulose blends also applicable in peroxide bleach
4. shaded
5. special product for easy-care finish
* special brightener with high light fastness on polyamide
** special brightener with high light fastness on polyamide and cotton, stable to bleaching agents containing chlorine

n = low affinity
m = medium affinity
h = high affinity
<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Wetting</th>
<th>deaerating</th>
<th>Defoaming</th>
<th>Properties</th>
<th>Pretreatment</th>
<th>Dyeing</th>
<th>Finishing</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOLLASOL AD</td>
<td>a-liq</td>
<td>x</td>
<td>xx</td>
<td></td>
<td>deaerating agent and defoaming agent</td>
<td>xx</td>
<td>x</td>
<td>xx</td>
</tr>
<tr>
<td>KOLLASOL CDA</td>
<td>n-liq</td>
<td>xx</td>
<td>xx</td>
<td></td>
<td>spec. silicone compound</td>
<td>xx</td>
<td>xx</td>
<td>xx</td>
</tr>
<tr>
<td>KOLLASOL CDS</td>
<td>n-liq</td>
<td>xx</td>
<td>xx</td>
<td></td>
<td>deaerating agent and penetration agent with excellent foam reducing properties for pretreatment and dyeing</td>
<td>xx</td>
<td>xx</td>
<td>xx**</td>
</tr>
<tr>
<td>KOLLASOL HWR</td>
<td>n-liq</td>
<td>xx</td>
<td>x</td>
<td></td>
<td>silicone oil-free deaerating agent</td>
<td>xx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KOLLASOL IND</td>
<td>a-liq</td>
<td>xx</td>
<td>x</td>
<td></td>
<td>silicone oil-free deaerating agent for continuous dyeing</td>
<td>x</td>
<td>x</td>
<td>x*</td>
</tr>
<tr>
<td>KOLLASOL LOK</td>
<td>a-liq</td>
<td>x</td>
<td>xx</td>
<td></td>
<td>silicone oil containing defoaming agent</td>
<td>xx</td>
<td></td>
<td>x*</td>
</tr>
<tr>
<td>KOLLASOL OCE</td>
<td>n-liq</td>
<td>xx</td>
<td>x</td>
<td></td>
<td>silicone free, deaerating agent containing surfactants, wetting agent</td>
<td>xx</td>
<td></td>
<td>xx</td>
</tr>
<tr>
<td>KOLLASOL SD</td>
<td>n-liq</td>
<td>xx</td>
<td>x</td>
<td></td>
<td>wetting agent with deaerating effect with good stability to chemicals, volatile</td>
<td>x</td>
<td>xx</td>
<td></td>
</tr>
<tr>
<td>KOLLASOL ZIP</td>
<td>n-liq</td>
<td>x</td>
<td>xx</td>
<td></td>
<td>deaerator and penetration agent with outstanding foam-inhibiting properties for pretreatment and dyeing</td>
<td>xx</td>
<td>xx</td>
<td>xx**</td>
</tr>
</tbody>
</table>

* depending on dye class  
** recommended for the polyamide dyeing  
xx recommended – very good  
x suitable – good
### UNIVERSALLY APPLICABLE AUXILIARIES – WETTING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBITOL AS 6</td>
<td>a·liq</td>
<td>fatty alcohol ether phosphate</td>
</tr>
<tr>
<td>SUBITOL SB</td>
<td>a·liq</td>
<td>sulphosuccinic acid ester</td>
</tr>
</tbody>
</table>

### CLEANING AGENTS FOR MACHINES AND APPARATUSES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTENSOL OLI</td>
<td>n/c·liq</td>
<td>cleaning agents for machines soiled by oligomers</td>
</tr>
<tr>
<td>INTENSOL MR</td>
<td>a·liq</td>
<td>cleaning agent with high dissolving power for dyes, dye containing soilings, organic sediments and precipitations of finishes</td>
</tr>
<tr>
<td>FLUOREX DEL</td>
<td>c·liq</td>
<td>fluorescence quencher for soiling by anionic optical brightener</td>
</tr>
</tbody>
</table>

### PH BUFFER FOR NEUTRALISATION OF ALKALINE FINISHING PROCESSES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUTRACID NVM 200</td>
<td>o·liq</td>
<td>organic/inorganic buffer</td>
</tr>
<tr>
<td>NEUTRACID NCS</td>
<td>o·liq</td>
<td>organic/inorganic acid donor with sequestrant for neutralizing alkaline washing processes</td>
</tr>
<tr>
<td>NEUTRACID PAT</td>
<td>o·liq</td>
<td>organic/inorganic buffer especially for PA carpet</td>
</tr>
<tr>
<td>NEUTRACID WSG</td>
<td>a·liq</td>
<td>sequestering containing organic/inorganic acid donor for neutralisation of alkaline washing processes</td>
</tr>
</tbody>
</table>
PRETREATMENT

**BEISOL DO CONC. (o · pow)**
Desizing agent
Oxidative desizing agent, mainly applied for continuous alkali pretreatment and cold bleach to improve the desizing effect. 2 – 5 g/l BEISOL DO CONC.

**BEISOL PES (c · liq)**
Mix of non-ionic and cationic surfactants
Special product for deweighting PES and to remove PES sizes in alkaline treatment liquors. NaOH in combination with BEISOL PES depolymerizes PES size, and it is possible to desize and caustify in one working step or in the case of CO/PES mixtures to desize and do a cold bleach at once. Moreover, it is possible to deweight PES material with BEISOL PES with a lower NaOH concentration and at a lower temperatures so that various handles and weights can be produced depending on the weight reduction recipe.

*Continuous process:*
5 – 10 g/l BEISOL PES

**BEISOL PRO (o · liq)**
Enzyme
Special product for the enzymatic pretreatment of cellulose fibres and their blends in a neutral to slightly alkaline medium. BEISOL PRO is an enzyme mix applied for cleaning cellulose fibres.
BEISOL PRO clearly improves the hydrophilic effect on the fabric. The fabric is prepared at best for the subsequent bleach and dyeing. Depending on the origin of cotton a scouring becomes dispensable and water, time, chemicals and energy can be saved. A one-bath–several-phases dyeing process with preceding treatment with BEISOL PRO is possible without restrictions.

*Discontinuous process:*
1 – 4 % BEISOL PRO
*Continuous process:*
4 – 10 g/l BEISOL PRO

**BEISOL SED (o · liq)**
Bacteria amylase
BEISOL SED is an enzyme product which decomposes starch at standard desizing temperatures (65 – 70 °C) as well as at the boil. Owing to this heat stability, the application of BEISOL SED is not only restricted to short-time processes (e.g. pad steam processes with 1 minute of steam duration). It is also possible to apply BEISOL SED on plants with a longer reaction time (e.g. combi-steamer, jigger). Heavy metals block the enzymatic decomposing effect of enzyme products very much. It is therefore advantageous to add a sequestering agent which is compatible with enzymes to the desizing bath such as BEIXON NE. In order to prevent the pH value from shifting to a pH outside of enzyme compatibility range caused by e.g. singeing dust, we recommend the addition of suitable buffering substances such as NEUTRACID NVM 200.
To achieve the highest possible wetting and liquor pick-up of the substrate in the padding process, we recommend the addition of a special deaerating agent such as KOLLASOL OCE. Details on application can be taken from the technical leaflets.

*BEISOL T 2090 (o · liq)*
Bacterial amylase
Special enzyme for desizing in the entire temperature spectrum. The product is applied in discontinuous and continuous desizing processes.

*Discontinuous process:*
1 – 4 % BEISOL T 2090
*Continuous process:*
4 – 10 g/l BEISOL T 2090

**BEIXON AB 200 % (a · liq)**
Polyacrylate copolymer with saccharides
Sequestering and dispersing agent for dyeing and pretreatment. Stabiliser for the hydrogen peroxide bleach. BEIXON AB 200 % is free of phosphorus and can be applied in cases of strict limit values for the introduction of phosphates into the waste waters and the demand of completely biodegradable sequestering agents. BEIXON AB 200 % does not have a demineralising effect when dying with metalliferous dyes.

*Discontinuous process:*
0.3 – 1 % BEIXON AB 200 %
*Continuous process:*
2 – 5 g/l BEIXON AB 200 %

**BEIXON Q (a · liq)**
Polycarboxylic acids and special polymers
BEIXON Q is one component of a pretreatment concept which has been developed for cleaning and extracting cellulose fibres having a high degree of heavy metal impurities. Together with our CONTAVAN ICE, it contributes to a safe pretreatment and an immense increase of
whiteness. In many cases the application of BEIXON Q can decrease pinholes and fabric damages. BEIXON Q has a very high sequestering and dispersing capacity to alkaline earth and heavy metal ions in neutral to slightly acid treatment baths. The product is thus particularly suited for application in enzymatic desizing and in neutral wash processes. The application of BEIXON Q in neutral to slightly acid baths leads to a good removal of alkaline earth and heavy metal ions. Thanks to the outstanding dispersing properties of the product, pigment impurities are removed as well. Pretreatment of the fibre with BEIXON Q and a subsequent bleaching with CONTAVAN ICE improves the whiteness degree, which can result in peroxide savings of 30 – 50% depending on the fabric quality. BEIXON Q can also be added to bleaching and scouring baths for removing heavy metals. The additional application in pad steam processes minimizes alkaline earth deposits on the guide rollers and depositing device. In this way cleaning cycles of the wash compartments and steamers can be shortened and reduced. The product is easily biodegradable and phosphor-free and can thus be applied where strict limit values have to be observed for emitting phosphate to the waste water.

Details on application can be taken from the technical leaflets.

CHT-AKTIVATOR FBA (o · liq)
Peroxide activator
CHT-AKTIVATOR FBA accelerates and increases in combination with CHT-PUFFER FBA the bleaching effect of hydrogen peroxide in a neutral medium at 60 – 75°C. With CHT-AKTIVATOR FBA and CHT-PUFFER FBA it is possible to achieve a high degree of whiteness when bleaching materials which are sensitive to temperatures and alkali.

2 – 5% CHT-AKTIVATOR FBA

CHT-PUFFER FBA (o · liq)
Mixture of inorganic salts
CHT-PUFFER FBA accelerates and optimises the neutral bleach with CHT-AKTIVATOR FBA. The application quantity of CHT-AKTIVATOR FBA and CHT-PUFFER FBA should be identical.

2 – 5% CHT-AKTIVATOR FBA

2 – 5% CHT-PUFFER FBA

1 – 1.5 fold quantity of H₂O₂ 35%, referring to the application of activator

CONTAVAN CLO PLV (a · pow)
Buffer mixture
Stabiliser for discontinuous and continuous bleach with Na-chlorite.

It stabilises activated chloride

It keeps the pH value constant during bleaching due to its buffering power.

It inhibits the formation of chlorine dioxide and the unpleasant odour connected therewith.

Discontinuous process:
1 – 2% CONTAVAN CLO PLV
Continuous process:
4 – 6 g/l CONTAVAN CLO PLV

CONTAVAN GAL (a · liq)
Organic chelate former based on hydroxy carboxylic acids
Non-foaming stabiliser stable to alkali for the peroxide bleach. CONTAVAN GAL has excellent peroxide stabilising properties in presence of catalytic heavy metals like iron, copper and manganese.

Discontinuous process:
0.5 – 1% CONTAVAN GAL
Continuous process:
5 – 10 g/l CONTAVAN GAL

CONTAVAN ICE (a · liq)
Organic chelate former based on polycarboxylic acids
Non-foaming stabiliser for the alkaline peroxide bleach. CONTAVAN ICE has a strong binding power in presence of hardening substances and an excellent peroxide stabilising effect on heavy metals with catalytic effect like iron, copper and manganese. Due to the special composition the application quantities in bleaching recipes are normally lower in comparison to conventional stabilisers. CONTAVAN ICE is preferably applied in continuous bleaching procedures.

Discontinuous process:
0.1 – 0.5% CONTAVAN ICE
Continuous process:
3 – 6 g/kg CONTAVAN ICE

CONTAVAN TIG (a · liq)
Organic chelate former based on polycarboxylic acids
Peroxide stabiliser very stable to alkali with excellent stabilising, dispersing and high sequestering power in presence of catalysts and hardening substance. CONTAVAN TIG is recommended for bleaching without silicate of soda and for highly reinforced feeding liquors.

Discontinuous process:
0.3 – 1.5 % CONTAVAN TIG
Continuous process:
3 – 6 g/l CONTAVAN TIG

CONTAVAN VAN (a · liq)
Organic chelate former, dispersing agent and crystal inhibitors in combination with special silicates
Peroxide stabiliser for alkaline peroxide bleaching procedures. CONTAVAN VAN contains special silicates which have a better buffering capacity than conventional waterglass. The contained crystallisation inhibitors prevent silicate crusts on machines and heat exchangers. CONTAVAN VAN is suitable for all bleaching procedures.

Discontinuous process:
1 – 1.5% CONTAVAN VAN
Continuous process:
5 – 10 g/l CONTAVAN VAN and adding magnesium ions

FELOSAN FDO NEU (n · liq)
Emulsified terpene hydrocarbon
Fat solubilising agent and wet stain remover with very good dissolving properties towards oils, fats, and other preparations. Due to its biodegradability FELOSAN FDO NEU can be used where other detergents containing solvents cannot be used because of the contamination of the waste water.

Discontinuous process:
0.3 – 2% FELOSAN FDO NEU
Continuous process:
3 – 10 g/l FELOSAN FDO NEU

FELOSAN BOX (n · liq)
Modified fatty alcohol ethoxylates with anionic comb polymers
FELOSAN BOX is a new type of detergent with exceptional washing efficiency. Owing to its high washing and cleaning power, this product has outstanding hydrophilic properties on cotton. The good oil emulsifying capacity of FELOSAN BOX not only ensures an outstanding oil removal, but also increases the emulsion stability of oils/fats or waxes in washing baths. FELOSAN BOX is low foaming, so that it can also be used on washing machines and discontinuous dyeing machines with
**PRETREATMENT**

**Continuous process:**
0.5 – 2 % FELOSAN NKB

**Discontinuous process:**
Recommended in the continuous treatment.

**Continuous washing:**
1.0 – 5 g/l FELOSAN FOX

**Discontinuous process:**
Applied on washing machines with low foaming properties. FELOSAN NFG can be applied on washing machines and discontinuous dyeing machines with high turbulences. Since the activities of bacterial compositions and pancreas amyloses are not impaired by FELOSAN JET, it may also be added to desizing liquors as wetting agent and for emulsifying size fats.

**Discontinuous process:**
1 – 2 % FELOSAN JET

**Continuous process:**
5 – 10 g/l FELOSAN JET

**FELOSAN JET [a/n · liq]**
Modified fatty alcohol ethoxylates, low foaming washing and wetting agent. FELOSAN JET has a good wetting power and a high washing and cleaning power. Therefore FELOSAN JET is highly suited to wash and clean all fibre types. The product is low foaming without silicone-containing antifoam system, so that it can also be applied on washing machines and discontinuous dyeing machines with high turbulences. Since the activities of bacterial compositions and pancreas amyloses are not impaired by FELOSAN JET, it may also be added to desizing liquors as wetting agent and for emulsifying size fats.

**Discontinuous process:**
1 – 2 % FELOSAN JET

**Continuous process:**
5 – 10 g/l FELOSAN JET

**FELOSAN NFG [n · liq]**
Fatty alcohol ethoxylates
Washing agent with distinct emulsifying power for oil and fat stains, high wetting and a very good washing power. Due to its low foaming property FELOSAN NFG can be applied on washing machines with high turbulences and is mainly applied on discontinuous processes.

**Discontinuous process:**
0.5 – 2 % FELOSAN NFG

**Continuous process:**
3 – 6 g/l FELOSAN NFG

**FELOSAN NKB [n · liq]**
Modified fatty alcohol ethoxylates
Washing agent with distinct oil emulsifying power, high wetting power and a very good washing power. FELOSAN NKB is suitable for discontinuous and continuous washing and bleaching processes, but it is preferably recommended in the continuous treatment.

**Discontinuous process:**
0.5 – 2 % FELOSAN NKB

**Continuous process:**
3 – 6 g/l FELOSAN NKB

**FELOSAN RG-N [n · liq]**
Mix of fatty alcohol ethoxylates
Low foaming emulsifying agent, preferably applied to remove natural and synthetic fatty substances. The product is suitable for discontinuous and continuous procedures and without addition of solvents it facilitates the removal of knitting oils and loom oils from the textiles.

**Discontinuous process:**
0.5 – 3 % FELOSAN RG-N

**Continuous process:**
3 – 50 g/l FELOSAN RG-N depending on the oil soiling

**FELOSAN RIZ 40 [n · liq]**
Ethylene oxide addition products
Due to its composition FELOSAN RIZ 40 has a particularly distinct emulsifying capacity for silicone oils, knitting oils and fibre finishes based on fatty acid ester ethoxylates. It has also very good washing properties. FELOSAN RIZ 40 is universally suited for all types of fibres and can be applied in slightly acidic as well as in neutral to alkaline ranges. 2 – 4 % FELOSAN RIZ 40

**FELOSAN RNF [n · liq]**
Modified ethoxylates
Silicone-free, universally applicable, non-foaming wetting and washing agent for all fibres. FELOSAN RNF stands out for its excellent wetting power and high cleaning capacity. FELOSAN RNF is applied as carbonizing wetting agent.

**Discontinuous process:**
0.5 – 2 % FELOSAN RNF

**Continuous process:**
4 – 8 g/l FELOSAN RNF

**FLUOREX DEL [c · liq]**
Cationic polymer
Highly effective special product to quench undesired fluorescence. FLUOREX DEL acts only with anionic brighteners and quenches the fluorescence on cotton and polyamide. The effect is lower on polyamide. Another brightening of fabric treated with FLUOREX DEL is only possible on certain conditions or not anymore. FLUOREX DEL is very much suitable for the cleaning of machines, apparatus and padders contaminated with optical brighteners.

**Discontinuous process:**
0.5 – 6 % FLUOREX DEL

**Continuous process:**
5 – 25 g/l FLUOREX DEL

**Cleaning of machines:**
5 – 15 g/l FLUOREX DEL

**HEPTOL B 81 200 % [a · liq]**
Mixture of polyacrylates and acrylic acid copolymerisates
Highly concentrated, phosphorus-free sequestering agent. HEPTOL B 81 200% is applied for softening operative water for the pretreatment as well as for sequestering alkaline earth and heavy metal ions in all pretreatment and dyeing processes.

**Discontinuous process:**
0.3 – 1.5 % HEPTOL B 81 200%

**Continuous process:**
0.5 – 3 g/l HEPTOL B 81 200%

**HEPTOL EMG [a · liq]**
Synergetic mixture of different phosphonates
Very acid sequestering agent with a high pH buffering power which is used in acid demineralisation and in acid dyeing baths. HEPTOL EMG stands out for the following properties on the contrary to the acids applied as well in this field like e.g. acetic acid, formic acid and oxalic acid:

- not vapour-volatile, therefore no disturbing odours and corrosion of factory halls and pipe systems
- no formation of insoluble salts, e.g. calcium sulphate or calcium oxalate
- no corrosive effect on stainless steel
- even if the pH changes to the alkaline range, the sequestering effect will be maintained, i.e. it is possible to demineralise and bleach in one bath after the pH has changed with HEPTOL EMG acting as stabiliser.

1 – 5 g/l HEPTOL EMG depending on the metal content and the process

**HEPTOL ESW [a · liq]**
Phosphonate
Sequestering agent with an outstanding binding capacity towards hardening agents and heavy metals ions. The main application field is pretreatment, but HEPTOL ESW has also a stabilising effect on peroxide and combines the advantages of a stabiliser with sequestering properties.

0.5 – 3 g/l HEPTOL ESW depending on the metal content
HEPTOL KEB [a · liq]
Phosphonate
Sequestering agent with a very high binding capacity towards hardening agents and heavy metal ions, applicable in all pretreatment processes, discontinuous and continuous processes. Due to the peroxide stabilising effect HEPTOL KEB can also act as stabiliser facilitating thus a gentle bleaching process.
0.5 – 3 g/l HEPTOL KEB depending on the metal content

HEPTOL NWS [a · liq]
Polymeric carboxylic acid containing polYPHOSphate
HEPTOL NWS acts as
► sequestering agent, which mainly eliminates hardening agents
► dispersing agent and detergent booster
i. e. HEPTOL NWS prevents detached accompanying substances or unfixed residual dyestuff from reabsorbing and increases the washing capacity of detergents
► soaping agent for fast soaping of vat, sulphur and naphthol dyeings
1 – 2 g/l HEPTOL NWS

HEPTOL SF 4 [a · liq]
Synergetic mix of different phosphonates
HEPTOL SF 4 has a very high sequestering power on alkaline earth ions and prevents the formation of alkaline earth silicates, alkaline earth carbonates and alkaline earth hydroxides and of heavy metal ions in an alkaline medium. HEPTOL SF 4 can be applied as sequestering agent in processes of pretreatment and dyeing.
0.5 – 3 g/l HEPTOL SF 4 depending on the metal content

INTENSOL MR [a · liq]
Mixtute of solvents and surfactants
boiling at high temperatures
Cleaning agent for machines and apparatuses having a high solvent power for dyes, soings containing dyes and organic sediments as well as precipitations of preparations.
2 – 5 g/l INTENSOL MR mostly together with reduction agent, the application quantity depends on the degree of soiling

INTENSOL OLI [n / c · liq]
Quaternary ammonium compound
For boiling out machines and apparatus. Deposits of dyestuffs, oligomers, preparations and hardeners are dissolved and dispersed by the precipitation inhibitors so that they do not redeposit in the machine parts when drained.
Also INTENSOL OLI has the characteristic to saponify oligomers in the presence of alkali at temperatures between 80°C and 130°C. In this way, it is possible to use INTENSOL OLI during reductive aftertreatment at 70 – 80°C, after a polyester dyeing.
Cleaning machines at the boil 2 – 5 g/l INTENSOL OLI

KOLLASOL AD [a · liq]
Combination of non-ionic and anionic surfactants with special silicones
KOLLASOL AD mostly acts as defoaming agents, and it is suited for half and fully filled nozzle apparatuses as well as short liquor dyeing apparatuses. KOLLASOL AD is HT resistant.
0.2 – 1 g/l KOLLASOL AD

KOLLASOL CDA [n · liq]
Mixture of hydrophilic silicone surface active agents with higher alcohols
Deaerator with foam inhibiting properties based on the new type of silicone surface active substances. KOLLASOL CDA minimises the risk of stain formation with its new chemistry since unlike antifoam systems based on emulsified silicone oils, this system does not detach silicone oil. The product is applicable in pretreatment and dyeing processes on all high speed machines.
0.1 – 1 g/l KOLLASOL CDA

KOLLASOL HWR [n · liq]
Combination of fatty alcohols, fatty alcohol ethoxylates and fatty alcohol alkoxylates
Penetration accelerator and wetting agent with excellent low foaming properties for finishing and easy-care finish. KOLLASOL HWR causes an immediate penetration of the material and makes the finishing chemicals get evenly absorbed. KOLLASOL HWR has a very good emulsifying capacity and acts as solubiliser for finishing components. With its very good emulsifying effect KOLLASOL HWR can be also applied in desizing, washing and bleaching processes on jets.
1 – 10 g/l KOLLASOL HWR

KOLLASOL OCE [n · liq]
Combination of surface-active agents with deaerating effect
In all application fields of the vat dyeing and reactive dyeing KOLLASOL OCE accelerates penetration very well. KOLLASOL INd has an excellent deaerating effect and dispersing properties due to its special formulation. Due to its anionic character the product can be rinsed off very easily. KOLLASOL IND does not have a retarding effect on dyes, and does not impair the dye yield.
2 – 5 g/l KOLLASOL OCE

KOLLASOL LOK [a · liq]
Mixture of surface-active substances containing silicone, with higher alcohols
Deaerator and antifoam with wetting properties. KOLLASOL LOK is used whenever an excellent deaeration of the material is absolutely necessary for an undisturbed process.
0.2 – 1 g/l KOLLASOL LOK [depending on foam formation]

KOLLASOL IND [a · liq]
Combination of surface-active agents with defoaming effect
In all application fields of the vat dyeing and reactive dyeing KOLLASOL IND accelerates penetration very well. KOLLASOL IND has an excellent deaerating effect and dispersing properties due to its special formulation. Due to its anionic character the product can be rinsed off very easily. KOLLASOL IND does not have a retarding effect on dyes, and does not impair the dye yield.
2 – 5 g/l KOLLASOL IND

KOLLASOL HWR [n · liq]
Combination of fatty alcohols, fatty alcohol ethoxylates and fatty alcohol alkoxylates
Penetration accelerator and wetting agent with excellent low foaming properties for finishing and easy-care finish. KOLLASOL HWR causes an immediate penetration of the material and makes the finishing chemicals get evenly absorbed. KOLLASOL HWR has a very good emulsifying capacity and acts as solubiliser for finishing components. With its very good emulsifying effect KOLLASOL HWR can be also applied in desizing, washing and bleaching processes on jets.
1 – 10 g/l KOLLASOL HWR

KOLLASOL OCE [n · liq]
Combination of surface-active agents with deaerating effect
In all application fields of the vat dyeing and reactive dyeing KOLLASOL OCE accelerates penetration very well. KOLLASOL IND has an excellent deaerating effect and dispersing properties due to its special formulation. Due to its anionic character the product can be rinsed off very easily. KOLLASOL IND does not have a retarding effect on dyes, and does not impair the dye yield.
2 – 5 g/l KOLLASOL OCE
**KOLLASOL SD (n · liq)**  
Phosphoric acid ester  
Wetting agent, deaerator and foam inhibitor. KOLLASOL SD is applied in many textile finishing processes, especially in pretreatment and bleaching. The product has a self antifoaming effect and therefore it can be also applied as antifoam.  
0.1 – 1 g/l KOLLASOL SD

**KOLLASOL ZIP (n · liq)**  
Organo-modified siloxanes in combination with alkoxylates  
The application of KOLLASOL ZIP gives outstanding and long-lasting defoaming effects in all application fields. Good defoaming properties with very low application are achieved on rapid running machines. The product is very well compatible with dyes and can therefore also be used in dyeing processes. Compared with defoaming systems based on emulsified silicone oils, there is no risk of stain formation caused by silicone oil deposits when using KOLLASOL ZIP. KOLLASOL ZIP can be applied in cold as well as in hot treatment baths.  
0.1 – 1 g/l KOLLASOL ZIP

**NEUTRACID NCS (o · liq)**  
Organic/inorganic buffer mix containing a sequestering agent  
Compared with the usual products based on organic mixes of acids and buffer it has a high sequestering effect in cold and hot liquors. The product is therefore not only suitable for neutralising processes but also for combined neutralisation/extraction of hardening substances and heavy metals as well as for an acid demineralisation before the bleaching process. NEUTRACID NCS is not volatile and does not have a corrosive effect so that stenter or wet finishing machines are not affected.  
Discontinuous process:  
0.2 – 2 % NEUTRACID NCS  
Continuous process:  
For the application on a continuous range, we refer to the details stated in our technical leaflet.

**NEUTRACID NVM 200 (o · liq)**  
Mixture of organic/inorganic buffers  
PH buffer for neutralising alkaline finishing processes. Unlike mineral acid not even large quantities of NEUTRACID NVM 200 cause any fibre damage. The product is not volatile, so that a corrosion on the stenter frame or other machines will not occur.  
Discontinuous process:  
0.5 – 1 % NEUTRACID NVM 200  
Continuous process:  
For the application on a continuous range, we refer to the details stated in our technical leaflet.

**NEUTRACID PAT (o · liq)**  
Organic/inorganic buffer mixture  
NEUTRACID PAT is applied to adjust neutral to slightly acid pH values after alkaline finishing processes. The application concentration depends on the residual alkali content of the fabric, the water quality and the desired pH value on the fabric. NEUTRACID PAT proved to be especially suitable as acid buffer in the PA carpet dyeing.  
Discontinuous process:  
0.3 – 0.5 % NEUTRACID PAT depending on the application field  
Continuous process:  
For the application on a continuous range, we refer to the details stated in our technical leaflet.

**NEUTRACID WSG (a · liq)**  
Organic/inorganic buffer mixture containing a sequestering agent  
NEUTRACID WSG guarantees the adjustment of neutral to slightly acid pH values on the fabric which do not change even during a longer time of storage. By application of NEUTRACID WSG for neutralisation the pH change on the fabric due to the industrial water is compensated.  
Discontinuous process:  
0.2 – 2 % NEUTRACID WSG  
Continuous process:  
For the application on a continuous range, we refer to the details stated in our technical leaflet.

**TUBOBLANC 2B CONC. (a · pow)**  
Stilbene derivative  
Brightener with medium affinity with a brilliant, bluish white shade for cellulose fibres. TUBOBLANC 2B CONC. can be applied in continuous and discontinuous procedures. Due to the medium exhaust speed the addition of salt is recommended for the brightening of cotton in exhaust procedure.  
Discontinuous process:  
0.3 – 1 g/l TUBOBLANC 2B CONC.  
Continuous process:  
0.3 – 3 g/l TUBOBLANC 2B CONC.

**TUBOBLANC BL (a · liq)**  
Distyryl derivative  
Whitener with a low affinity to the cellulose fibre and high affinity to the polyamide fibre, wool and natural silk producing a neutral white shade for dyeing and bleaching processes.
to slightly reddish white shade. A special advantage is the high fastness to light which can be obtained with TUBOBLANC BL on polyamide fibres. TUBOBLANC BL is stable to acids up to pH 1 and can be applied in strongly acid easy-care finishing liquors. However, TUBOBLANC BL is sensitive to hardness. It is not possible to apply magnesium catalysts. In case of bleaching liquors containing electrolytes it is necessary to carry out preliminary trials.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.5 – 1.2% TUBOBLANC BL
  - 0.5 – 2% TUBOBLANC CRL

**Continuous process:**
- **Cellulose fibres:**
  - 0.5 – 3 g/l TUBOBLANC BL

**Polyamide, wool, silk:**
- **Discontinuous process:**
  - 0.5 – 1.5% TUBOBLANC BL
- 0.5 – 2% TUBOBLANC CRL

- **Continuous process:**
  - Polyamide, wool, silk:
    - 0.5 – 1.5% TUBOBLANC BL
  - 0.5 – 1.2% TUBOBLANC CRL

**TUBOBLANC COL (a · pow)**
Stilbene derivative
TUBOBLANC COL is a high affinity brightener for cellulose, polyamide, wool and silk which produces a very brilliant white shade through the addition of dyestuff. Depending on the recipe TUBOBLANC COL shows good stabilities towards peroxide and to reductive bleach.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.2 – 0.6% TUBOBLANC COL
- **Discontinuous process:**
  - Polyamide, wool, silk:
    - 0.3 – 1% TUBOBLANC COL

Application quantity depending on the desired whitening.

**TUBOBLANC CRL (a · liq)**
Stilbene derivative
TUBOBLANC CRL is a white shading agent with medium affinity to cellulose fibres and a high affinity to the polyamide fibre which gives a reddish white shade. The product stands out for its stability in chlorite bleaching liquors and its high fastness to light on cotton and polyamide fibres.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.5 – 1.2% TUBOBLANC CRL

**TUBOBLANC ERN (n · liq)**
Benzoxazole derivative
TUBOBLANC ERN is the reddish partner of TUBOBLANC EBF [bluish]. All other details see TUBOBLANC EBF.

**TUBOBLANC HA (a · liq)**
Stilbene derivative
Whitener with high affinity giving a neutral to bluish white shade on cellulose, wool, polyamide and silk. TUBOBLANC HA is mainly applied in the exhaust process. TUBOBLANC HA has a good stability to peroxide and reduction agents and can therefore be used for these bleaching processes.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.3 – 1% TUBOBLANC HA

**Continuous process:**
- **Polyamide, wool, silk:**
  - 0.5 – 2% TUBOBLANC HA

**TUBOBLANC HA-D3 (a · liq)**
Stilbene derivative
Whitener containing dye with high affinity giving a strong blue violet white shade on cellulose, wool, polyamide and silk. TUBOBLANC HA-D3 can be applied in the exhaust process and in the discontinuous peroxide and reduction agent bleach.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.1 – 0.6% TUBOBLANC HA-D3

**Discontinuous process:**
- **Polyamide, wool, silk:**
  - 0.1 – 0.6% TUBOBLANC HA-D3

Application quantity depending on the desired whitening.

**TUBOBLANC HM-PD (a · pow)**
Stilbene derivative
Optical brightener with high affinity and neutral to bluish white shade for cellulose, wool, polyamide and silk. TUBOBLANC HM-PD has good stabilities to peroxide and reduction agents. Due to its affinity behaviour and concentrated adjustment, TUBOBLANC HM-PD is recommended only for discontinuous long liquor processes.

**Discontinuous process:**
- **Cellulose fibres:**
  - 0.05 – 0.2% TUBOBLANC HM-PD

**Continuous process:**
- **Polyamide, wool, silk:**
  - 0.1 – 0.4% TUBOBLANC HM-PD
**TUBOBLANC HV [a · liq]**
Optical brightener for cellulose fibres. TUBOBLANC HV is preferably recommended for easy-care finishes and finishing due to its stability to metal salts and acid.

**Continuous process:**
5 – 20 g/l TUBOBLANC HV

**TUBOBLANC HV-S4 [a · liq]**
Stilbene derivative
TUBOBLANC HV-S4 is a brightener with low affinity. The shading dyestuff in this product gives a very brilliant, red to violet-tinged shade of white. The product mainly stands out for its stability in low pH ranges as well as by its high stability to electrolyte and metal salt catalysts. This makes TUBOBLANC HV-S4 suitable for resin finishing. The stability of the incorporated dyestuff depends on the resin finishing recipe and that is why pretrials must be done. This pretrial also serves for determining the application amount and the desired colour shade. Optical brighteners are very sensitive to heavy metal ions, so that even tiny amounts of heavy metal ions may impair the fluorescence. The addition of a sequestering agent such as HEPTOL KEB can solve this problem. Shading depends on the application amount and therefore the desired shading must be determined in pretrials. Higher amounts give a distinct red to violet-tinged white. Should only a very slight shading be needed, TUBOBLANC HV-S4 can be combined with the unshaded brightener TUBOBLANC HB.

5 – 10 g/l TUBOBLANC HV-S4

**TUBOBLANC MA [a · liq]**
Stilbene derivative
Universal brightener for cellulose and polyamide fibres, wool and natural silk. Because of its medium to high affinity, TUBOBLANC MA is applied in long liquors and imparts a neutral to slightly reddish white to the fabric. Depending on the fibre type, brightening can also be done in the peroxide or reduction agent bleach.

**Discontinuous process:**
Cellulose fibres:
0.3 – 1 % TUBOBLANC MA

Polyamide, wool, silk:
0.5 – 2 % TUBOBLANC MA

**Continuous process:**
Polyamide, wool, silk:
2 – 20 g/l TUBOBLANC MA

**TUBOBLANC PE-R [n · liq]**
Styryl benzene derivative
Optical brightener for polyester fibres with reddish white shade. The product is suitable for white shades produced in the exhaust process with the temperature being chosen between 115 °C and 130 °C. At fixation temperatures between 190 – 210 °C TUBOBLANC PE-R will give brilliant brightening effects.

**Discontinuous process:**
0.1 – 0.5 % TUBOBLANC PE-R

**Thermosol process:**
1 – 10 g/l TUBOBLANC PE-R

**TUBOBLANC PT-B [n · liq]**
Styryl benzene derivative
Optical brightener for polyester fibres. Dispersion brightener containing dye with the properties of TUBOBLANC PT-O.

**Discontinuous process:**
0.1 – 0.6 % TUBOBLANC PT-B

**Thermosol process:**
2 – 6 g/l TUBOBLANC PT-B

The application quantity depends on the desired whitening

**TUBOBLANC PT-O [n · liq]**
Styryl benzene derivative
Optical brightener for polyester fibres. TUBOBLANC PT-O is suited to brighten both PES and fibre blends containing PES in the exhaust and thermosol process. The optimum white is achieved at 110 – 130 °C in the exhaust process and at 180 – 200 °C in the thermosol process.

**Discontinuous process:**
0.2 – 1 % TUBOBLANC PT-O

**Thermosol process:**
2 – 10 g/l TUBOBLANC PT-O

**TUBOBLANC RBV [a · liq]**
Stilbene derivative
Brightener containing dye with low to medium affinity with strong blue violet white for cellulose which can be applied only in the impregnation process. The colour shade of TUBOBLANC RBV is not stable in the peroxide bleach.

**Continuous process:**
3 – 10 g/l TUBOBLANC RBV

**Application quantity depending on the desired whitening

**TUBOBLANC RUB [a · liq]**
Stilbene derivative
Brightener with low to medium affinity with red violet and very brilliant white shade for cellulose. Because of its affinity we recommend adding salt to TUBOBLANC RUB for complete bath exhaustion in the discontinuous process (peroxide/reduction bleach). TUBOBLANC RUB can also be used for finishing/easy-care finishing. The pH value of the liquors ought to be above pH 3.5. When using nitrate catalysts, an afterwashing is necessary to avoid losses of the fastness to light.

**Discontinuous process:**
0.4 – 1 % TUBOBLANC RUB

**Continuous process:**
3 – 10 g/l TUBOBLANC RUB

**TUBOBLANC STU [a · liq]**
Stilbene derivative
TUBOBLANC STU is a brightener with low affinity and has a blue-tinged white. TUBOBLANC STU mainly stands out for its stability in low pH ranges, for its high stability to electrolyte and metal salt catalysts as well as for its good washing stability. TUBOBLANC STU is our recommendation for resin finishing resp. easy-care finishing.

Details on application can be taken from the technical leaflets.

**TUBOBLANC STU-B [a · liq]**
Stilbene derivative
TUBOBLANC STU-B is a shaded brightener with low affinity and has a blue-violet white. TUBOBLANC STU-B mainly stands out for its stability in low pH ranges, for its high stability to electrolyte and metal salt catalysts as well as for its good washing stability. TUBOBLANC STU-B is our recommendation for resin finishing resp. easy-care finishing.

Details on application can be taken from the technical leaflets.

**TuboSet DAP [n · liq]**
Special mixture with modified fatty alcohol ethoxylates
Low foaming washing-active antioxidant to prevent or to reduce yellowing during thermofixation of articles containing PA. TUBOSET DAP has a very good silicone emulsifying power, and therefore we recommend it preferably on articles containing elastane as fixation protective agent.

**Continuous process:**
10 – 30 g/l TUBOSET DAP
**TUBOSET LVI (a · liq)**
Sulphonic acid salt
TUBOSET LVI reduces the tendency of phenolic yellowing during storage of light textiles in plastic bags. Phenolic yellowing is caused by BHT (2,6 butylated hydroxytoluene) which is sometimes used as anti-oxidation agent in such bags. TUBOSET LVI is mainly used on polyamide, but it can also be used on cotton, polyester and their blends.

The application amount depends on the yellowing tendency. The tendency of phenolic yellowing also depends on the pH value of the fabric [pH value of the fabric should be <5.5]. The product is adjusted to be acid, so that in most cases no pH corrective measures are necessary.

**Exhaust method:**
1 – 3 % TUBOSET LVI

**Application on the padder:**
10 – 30 g/kg TUBOSET LVI

**TUBOSET NOX 300 (o · liq)**
Mixture of organic acids and salts
TUBOSET NOX 300 minimizes the tendency of nitrogen oxide yellowing of optically brightened and dyed cellulose articles when textiles are stored. Nitrogen oxide yellowing is caused by nitrogen oxides (NOX) and occurs when fossil fuels burn.

The product ought to be primarily applied on the padder. Application amounts depend on the yellowing tendency of the substrate.

5 – 15 g/kg TUBOSET NOX 300

**TUBOSET PAP (n · liq)**
Carboxylic acid amide
Fibre protection agent for polyamide which prevents the polyamide fibre from a chemical damaging during the oxidative and reductive bleaching. In case of a chemical attack the groups necessary for the dye linkage of the PA fibres are modified in such a way that the dye absorption is reduced. In extreme cases a strong loss of tearing strength results.

**Discontinuous process:**
0.3 – 0.7 g/l TUBOSET PAP

**TUBOSET SAM (n · pow)**
Carboxylic acid amide
TUBOSET SAM is an antioxidant blocker.

The special product reduces the yellowing of polyamide fibres and their blends during thermal fixing or during the moulding process.

**Continuous process:**
0.5 – 2.5 g/kg TUBOSET SAM

**TUBOSET SML (n · liq)**
Carboxylic acid amide
TUBOSET SML is a special thermal protection reducing or preventing the yellowing of polyamide fibres and their blends during treatments at hot temperatures like – thermofixing and moulding.

**Continuous process:**
5 – 20 g/kg TUBOSET SML

**TUBOTEX NCD (a · pow)**
Synergetic mixture of inorganic alkali salts with surfactants
Alkali donor, buffer and stabiliser for discontinuous peroxide bleaching. TUBOTEX NCD contains all auxiliary additions which are normally used for hydrogen peroxide bleaching. Thus, the amount of required and stored bleaching chemicals can be reduced.

- Winch beck [LR 1 : 15 – 1 : 20] 2 – 4 g/l
- Jet [LR 1 : 6 – 1 : 10] 3 – 4 g/l
- Jigger [LR 1 : 3 – 1 : 5] 3 – 8 g/l

**VARIO BLEACH 3E (a · liq)**
Combination product made of peroxide activating components with anionic comb polymers
VARIO BLEACH 3E can be used as universal product for all discontinuous alkaline hydrogen peroxide bleachings of cellulosic fibres.

The peroxide activating properties of VARIO BLEACH 3E help increase the whiteness degree and decrease the process times. Despite the peroxide activating effect, there is no danger of more fibre damages. The comb polymers integrated in VARIO BLEACH 3E significantly support the cleaning effect and improve the removal of natural cotton accompanying substances as well as finishes, so that fewer rinsing baths are needed.

VARIO BLEACH 3E also has dispersing and sequestering properties. The broad spectrum of effects of VARIO BLEACH 3E has a positive effect on the pretreatment of various cotton qualities.

**Discontinuous process:**
0.5 – 1 % VARIO BLEACH 3E

**VISCAYN CCP (a · liq)**
Synergistic mixture of modified fatty alcohol ethoxylates, organic stabilising agents and sequestering agents
VISCAYN CCP is a multi-functional product for application in discontinuous and continuous bleaching. The product stands out for its exceptional wetting properties.

In addition, VISCAYN CCP has very good stabilising properties of hydrogen peroxide and very good sequestering properties of hardeners and catalysts. Owing to the surface active properties, impurities on the cotton are dissolved, removal during the washing process is improved and a reabsorption of the impurities is prevented.

The simultaneous sequestering properties of hardeners and catalysts prevent the formation of precipitations and catalytic damages during peroxide bleaching. Owing to the versatility of VISCAYN CCP, often only one product is needed, which makes processes easier and sources of error are reduced. Detailed information can be taken from our technical leaflets.

**VISCAYN GFN (a / n · liq)**
Modified fatty alcohol alkoxylates in combination with organic stabilisers and sequestering agents
Low foaming combination product composed of surface-active substances, stabilisers and sequestering agents. With its chemical composition the product can be applied in discontinuous and continuous washing processes.

**Discontinuous process:**
0.5 – 1 % VISCAYN GFN

**Continuous process:**
0.5 – 10 g/l VISCAYN GFN

**VARIO BLEACH 3E**
Synergistic mixture of modified fatty alcohol ethoxylates, organic stabilising agents and sequestering agents
VARIOS BLEACH 3E is a universal product for all discontinuous alkaline hydrogen peroxide bleachings of cellulosic fibres.

The peroxide activating properties of VARIO BLEACH 3E help increase the whiteness degree and decrease the process times. Despite the peroxide activating effect, there is no danger of more fibre damages. The comb polymers integrated in VARIO BLEACH 3E significantly support the cleaning effect and improve the removal of natural cotton accompanying substances as well as finishes, so that fewer rinsing baths are needed.

VARIO BLEACH 3E also has dispersing and sequestering properties. The broad spectrum of effects of VARIO BLEACH 3E has a positive effect on the pretreatment of various cotton qualities.

VARIO BLEACH 3E can be applied in a temperature range of 60 – 110 °C and does not foam.

0.5 – 1 % VARIO BLEACH 3E
KEY

<table>
<thead>
<tr>
<th>no</th>
<th>Without ionic character</th>
<th>fla</th>
<th>Flakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Anionic</td>
<td>pow</td>
<td>Powder</td>
</tr>
<tr>
<td>n</td>
<td>Non-ionic</td>
<td>pas</td>
<td>Paste</td>
</tr>
<tr>
<td>c</td>
<td>Cationic</td>
<td>x</td>
<td>Recommended</td>
</tr>
<tr>
<td>psc</td>
<td>Pseudocationic</td>
<td>(x)</td>
<td>Limited recommendation</td>
</tr>
<tr>
<td>d</td>
<td>Amphoteric</td>
<td>gran</td>
<td>Granulate</td>
</tr>
<tr>
<td>liq</td>
<td>Liquid</td>
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DISPERSION AGENTS AND/OR DYESTUFF SOLVENTS

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHT-DISPERGATOR ORM</td>
<td>a</td>
<td>liquid</td>
<td>Aromatic sulphonates</td>
</tr>
<tr>
<td>CHT-DISPERGATOR SMS</td>
<td>a</td>
<td>liquid</td>
<td>Aromatic sulphonates</td>
</tr>
<tr>
<td>CHT-DISPERGATOR XHT-S</td>
<td>a/n</td>
<td>liquid</td>
<td>Preparation of polyglycol ether derivatives</td>
</tr>
<tr>
<td>HEPTOL SF 4</td>
<td>a</td>
<td>liquid</td>
<td>Phosphonates</td>
</tr>
<tr>
<td>MEROPAN DA/DA 200</td>
<td>a</td>
<td>liquid</td>
<td>Polycrylate with phosphonate</td>
</tr>
<tr>
<td>MEROPAN DPE</td>
<td>a</td>
<td>liquid</td>
<td>Polycrylate, polycarboxylic acid and modified phosphonates</td>
</tr>
<tr>
<td>SARABID 200 LL</td>
<td>n</td>
<td>flakes</td>
<td>Fatty alcohol polyglycol ether</td>
</tr>
<tr>
<td>SARABID LDR</td>
<td>a</td>
<td>liquid</td>
<td>Special polymers</td>
</tr>
<tr>
<td>SARABID OL</td>
<td>n</td>
<td>liquid</td>
<td>Fatty alcohol polyglycol ether</td>
</tr>
<tr>
<td>SARABID MIP</td>
<td>a</td>
<td>liquid</td>
<td>Mixture of special polymers, fatty alcohol ether phosphate, enzyme</td>
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LEVELLING AGENTS FOR NATURAL FIBRES

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Cellulose fibres</th>
<th>Protein fibres</th>
<th>Acid dyes</th>
<th>1:1 Metal complex dyes</th>
<th>1:2 Metal complex dyes</th>
<th>Reactive dyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>KERIOLAN A2N</td>
<td>d</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RETINOL M *</td>
<td>n</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>SARABID 200 LL</td>
<td>n</td>
<td>flakes</td>
<td>x</td>
<td>(x)</td>
<td>[x]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID DLC</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>(x)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID DLO CONC.</td>
<td>n</td>
<td>liquid</td>
<td>(x)</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID IPD</td>
<td>n/psc</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>(x)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID IPM</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID LDR</td>
<td>a</td>
<td>liquid</td>
<td>(x)</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID MIP</td>
<td>a</td>
<td>liquid</td>
<td>(x)</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID OL</td>
<td>n</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARABID PAW</td>
<td>n</td>
<td>liquid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>SARABID VAT</td>
<td>c</td>
<td>liquid</td>
<td>x</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* only small quantities because high affinity to dyestuff
x first recommendation
(x) second recommendation

AUXILIARIES FOR PADDING AND CONTINUOUS DYEING

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>Fibre type</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLORCONTIN BDF</td>
<td>a</td>
<td>liquid</td>
<td>combination of non-ionic and anionic substances</td>
<td>PA</td>
</tr>
<tr>
<td>COLORCONTIN VGP</td>
<td>a</td>
<td>liquid</td>
<td>phosphor acid ester</td>
<td>CEL + SYNTH.</td>
</tr>
<tr>
<td>MIGRASOL SAP</td>
<td>a</td>
<td>liquid</td>
<td>aqueous solution of a polymeric Na-acrylamide/acrylate</td>
<td>CEL + SYNTH.</td>
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</table>
# LEVELLING AGENTS FOR SYNTHETIC FIBRES

<table>
<thead>
<tr>
<th></th>
<th>PA</th>
<th>PES</th>
<th>CA/CTA</th>
<th>PAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ionic character</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acid dyes</td>
<td></td>
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<tr>
<td>Metal complex dyes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispersion dyes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispersion dyes with affinity to fibres</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispersd dyes with affinity to dyes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cationic dyes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **CHT-DISPERGATOR XHT-S**: a/n liquid, x, x
- **EGASOL MD**: a liquid, x, x
- **EGASOL UP**: a liquid, x, x
- **SARABID IPD**: n/psc liquid, x, x
- **SARABID IPF**: a liquid, x, x
- **SARABID IPM**: a liquid, x, x
- **TUBACRYL RI**: c liquid, x
- **TUBACRYL RVR**: c liquid, x
- **VISCAVIN S 700**: a paste, x

# DYEING ACCELERATORS

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>Fibre type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ionic character</td>
<td>Appearance</td>
<td>Chemical base</td>
<td>Fibre type</td>
</tr>
<tr>
<td>SARAPOL BLU</td>
<td>a</td>
<td>liquid</td>
<td>carboxylic acid ester</td>
<td>PES/PES/WO</td>
</tr>
<tr>
<td>SARAPOL DLN</td>
<td>a</td>
<td>liquid</td>
<td>aromatic esters and hydrocarbons</td>
<td>PES</td>
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### Crease Prevention Agents

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>CEL</th>
<th>WO SE</th>
<th>PA</th>
<th>PES, CA, CTA</th>
<th>PAN</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIAVIN 109</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x*</td>
<td></td>
<td>emulsified fatty compound</td>
</tr>
<tr>
<td>BIAVIN BLI</td>
<td>n</td>
<td>liquid</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>aqueous solution of a polyamide derivative</td>
</tr>
<tr>
<td>BIAVIN BPA</td>
<td>no</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>polymer amides</td>
</tr>
<tr>
<td>BIAVIN DFG</td>
<td>a</td>
<td>liquid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>combination of polymer dispersion and sequestering agent</td>
</tr>
<tr>
<td>BIAVIN PCV</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>phosphor acid ester</td>
</tr>
<tr>
<td>BIAVIN TCC</td>
<td>n</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x*</td>
<td>x*</td>
<td>polyethylene emulsion</td>
</tr>
<tr>
<td>VISCevin S 700</td>
<td>a</td>
<td>paste</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>modified ester with ethoxylates and sulphonates</td>
</tr>
</tbody>
</table>

* blends with CEL

### PH-Regulating Agents, Acid Donors and Alkali Donors

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGASOL SF</td>
<td>no</td>
<td>inorganic buffering solution [alkaline]</td>
</tr>
<tr>
<td>MEROPAN CIT</td>
<td>a</td>
<td>organic/inorganic buffering compound and dispersing agent [acid]</td>
</tr>
<tr>
<td>MEROPAN EF 200</td>
<td>n</td>
<td>special ester (pH control acid)</td>
</tr>
<tr>
<td>MEROPAN KP</td>
<td>no</td>
<td>mixture of organic acids and salts (acid)</td>
</tr>
<tr>
<td>NEUTRACID B0 45</td>
<td>a</td>
<td>organic/inorganic buffering compound (pH acid)</td>
</tr>
<tr>
<td>SI-CONTROL KKV</td>
<td>no</td>
<td>modified silicate of soda with deposit inhibitors and dispersing agents</td>
</tr>
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# Products to Remove PES Oligomers

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHT-DISPERGATOR XHT-S</td>
<td>a/n liquid</td>
<td>preparation of polyglycol ether derivatives</td>
</tr>
<tr>
<td>INTENSOL OLI</td>
<td>n/c liquid</td>
<td>quaternary ammonium compound</td>
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# Fibre Protection Agents for Wool

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEROPAN EW</td>
<td>a liquid</td>
<td>proteolytic product</td>
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# Boiling Protection and Oxidation Agents

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<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEROPAN LAT</td>
<td>a liquid</td>
<td>nitrobenzene sulphonate</td>
</tr>
<tr>
<td>MEROPAN XR GRANULAT</td>
<td>a granulate</td>
<td>nitrobenzene sulphonate</td>
</tr>
</tbody>
</table>

# Reduction Agents

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>Fibre type</th>
</tr>
</thead>
<tbody>
<tr>
<td>REDULIT GIN</td>
<td>a liquid</td>
<td>glucose blend with dispersing agents</td>
<td>PES PES/CEL</td>
</tr>
<tr>
<td>REDULIT RED</td>
<td>no liquid</td>
<td>sulphinic acid derivative</td>
<td>PES</td>
</tr>
</tbody>
</table>

# Peroxide Destruction

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>Fibre type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHT-CATALASE BF</td>
<td>no liquid</td>
<td>enzyme for destroying residual peroxide after prebleaching</td>
<td>CEL</td>
</tr>
<tr>
<td>MEROPAN BRE</td>
<td>no liquid</td>
<td>inorganic salt</td>
<td>CEL</td>
</tr>
</tbody>
</table>
FASTNESS IMPROVEMENTS OF DYEINGS AND PRINTS
CELLULOSE AND CELLULOSE BLENDS

<table>
<thead>
<tr>
<th>AFTERSOAPING AGENT</th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Reactive</th>
<th>Vat</th>
<th>Sulphur</th>
<th>Coupling dyes</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>COTOBLANC KRS</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>mixture of polyacrylates and modified phosphonates</td>
</tr>
<tr>
<td>COTOBLANC NSR</td>
<td>a</td>
<td>powder</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>mixture of organic and inorganic compounds</td>
</tr>
<tr>
<td>COTOBLANC PCS</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>mixture of sequestering agents and dyestuff affine polymers</td>
</tr>
<tr>
<td>COTOBLANC RS</td>
<td>no</td>
<td>powder</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>colloidal system free of surfactants</td>
</tr>
<tr>
<td>COTOBLANC SEL / SEL 200</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>mixture of sequestering agents and dyestuff affine polymers</td>
</tr>
<tr>
<td>MEROPAN DA/DA 200</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>polycarboxylic acid and phosphonates</td>
</tr>
<tr>
<td>MEROPAN DPE</td>
<td>a</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>polycarboxylic acid and phosphonates</td>
</tr>
<tr>
<td>SARABID DLO CONC.</td>
<td>n</td>
<td>liquid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reductive cleaning of CEL/PES blends combination of ethoxylates</td>
</tr>
<tr>
<td>SARABID OL</td>
<td>n</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>fatty alcohol polyglycol ether</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CATIONIC AFTERTREATMENT</th>
<th>Ionic character</th>
<th>Appearance</th>
<th>Reactive</th>
<th>Direct</th>
<th>Exhaust procedure</th>
<th>Padding procedure</th>
<th>Wash</th>
<th>Contact fastness</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>REVOFIX WET*</td>
<td>c</td>
<td>liquid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>polyurethane dispersion</td>
</tr>
<tr>
<td>REWIN ACP</td>
<td>c</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>polyammonium compound</td>
</tr>
<tr>
<td>REWIN DMT-N</td>
<td>c</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>polyammonium compound</td>
</tr>
<tr>
<td>REWIN FSN</td>
<td>c</td>
<td>liquid</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>polyammonium compound</td>
</tr>
</tbody>
</table>

* improves the dry rubbing fastness and especially the wet rubbing fastness on CEL and synthetic fibres
### Polyamide

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAFIX No1/PAFIX No1 CONC.</td>
<td>a liquid</td>
<td>aromatic sulphonates</td>
</tr>
<tr>
<td>REWIN KF</td>
<td>a liquid</td>
<td>aromatic sulphonates</td>
</tr>
<tr>
<td>REWIN KMB</td>
<td>a liquid</td>
<td>aromatic sulphonates</td>
</tr>
<tr>
<td>REWIN KNR</td>
<td>a liquid</td>
<td>aromatic sulphonates</td>
</tr>
</tbody>
</table>

### Cellulases for Surface Treatment of Fabrics and Knitwear

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>pH and temperature range for highest efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEIZYM ACE</td>
<td>n liquid</td>
<td>cellulase</td>
<td>pH 4.5 – 5.5; 45 – 55°C</td>
</tr>
<tr>
<td>BEIZYM BPN 300</td>
<td>n liquid, neutral</td>
<td>cellulase</td>
<td>pH 5 – 8; 45 – 55°C</td>
</tr>
<tr>
<td>BEIZYM HC</td>
<td>n liquid</td>
<td>cellulase</td>
<td>pH 4.5 – 5.5; 45 – 55°C</td>
</tr>
<tr>
<td>BEIZYM SPELL</td>
<td>n liquid</td>
<td>cellulase</td>
<td>pH 5 – 7; 40 – 55°C</td>
</tr>
<tr>
<td>BEIZYM UL</td>
<td>n liquid</td>
<td>cellulase</td>
<td>pH 5 – 7; 40 – 55°C</td>
</tr>
</tbody>
</table>

### Auxiliaries for Waste Water Treatment

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Chemical base</th>
<th>Application field</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHT-FLOCKUNGSMITTEL ACL</td>
<td>a granulate</td>
<td>modified polyacrylamide</td>
<td>flocculant for improving sedimentation</td>
</tr>
<tr>
<td>CHT-FLOCKUNGSMITTEL CV</td>
<td>c liquid</td>
<td>condensation product containing nitrogen</td>
<td>cationic flocculant</td>
</tr>
</tbody>
</table>
PRODUCT INDEX

BEIZYM ACE (n · liq)
Mixture of cellulases (acid)
BEIZYM ACE is a highly effective cellulase for the following application fields: removal of fibre fluffs, pillings, abrasions on cotton and defibrillation of Lyocell fibres. BEIZYM ACE is suitable for the enzymatic treatment of blue denim articles. The following effects are obtained: reduced pilling, clear surface structures, less fibre fluffs at the surface, improved handle, higher surface smoothness and silky brilliance.

0.2 – 1 % BEIZYM ACE for surface treatment (pH 4.5 – 5.5; temp. 45 – 55 °C)

BEIZYM BPN 300 (n · liq)
Mixture of cellulases (neutral)
Concentrated neutral cellulase with broad application spectrum. BEIZYM BPN 300 is a cellulase product for the biofinish treatment of cotton and cotton blends, particularly for dyed articles and for surface treatment. The application of BEIZYM BPN 300 results in considerable advantages compared with customary acid cellulases:

- Broad application field of pH 5.0 – 8.0, thus higher process safety and reproducibility
- Much less bleeding when treating dyed articles in the neutral pH range
- No or clearly less colour shade changes when working in a neutral pH range
- Less weight loss and loss of strength

0.5 – 2 % BEIZYM BPN 300, (pH 5 – 8; temp. 45 – 55 °C)

BEIZYM HC (n · liq)
Mixture of cellulases (acid)
Mixture of highly concentrated cellulases with a broad application field. The two main fields are surface treatment of fabrics and knitwear as well as the enzymatic treatment of blue denim articles. With BEIZYM HC fibre fluffs, chafe marks and pilling on textile surfaces are removed. On Lyocell fibres BEIZYM UL is applied for defibrillation. In the treatment of blue denim articles BEIZYM UL is applied on most different enzymatic stone processes.

0.75 – 2 % BEIZYM UL for surface treatment (pH 4.5 – 5.5; temp. 45 – 55 °C)
0.7 – 2 % BEIZYM UL on blue denim (pH 4.5 – 5.5; temp. 45 – 55 °C)

BEIZYM SPELL (n · fl)
Cellulases blend
In comparison to a surface treatment with common cellulases BEIZYM SPELL has the following advantages:

- efficient on CV and on highly twisted CO qualities and its blends
- efficient on turquoise, black and critical shades as well as on striped articles with different colours
- clearly less staining when treating dyed articles in a neutral pH range at 40 °C
- no or clearly less shade deviations when working in a neutral pH range
- reduced weight or strength losses
- contains lint dispersants

0.5 – 2.0 % BEIZYM SPELL (pH 5 – 7; temp. 40 – 60 °C)

BEIZYM UL (n · liq)
Mixture of cellulases (acid)
Mixture of cellulases with broad application spectrum. The two main application fields are surface treatment of fabrics and knits as well as enzymatic treatment of blue denim articles. With BEIZYM UL fibre fluffs, chafe marks and pilling on textile surfaces are removed. On Lyocell fibres BEIZYM UL is applied for defibrillation. In the treatment of blue denim articles BEIZYM UL is applied on most different enzymatic stone processes.

0.75 – 2 % BEIZYM UL for surface treatment (pH 4.5 – 5.5; temp. 45 – 55 °C)
0.7 – 2 % BEIZYM UL on blue denim (pH 4.5 – 5.5; temp. 45 – 55 °C)

BIAVIN 109 (a · liq)
Emulsified fat compound
Concentrated gliding agent and crease preventing agent. Dyeing machines can carry a higher load or the liquor ratio may be reduced which reflects in a considerable savings of salt, alkali and energy. Since it is resistant to acids, BIAVIN 109 can also be used for one-bath dyeing of fibre blends with reactive, acid or disperse dyes. A stock solution can be prepared.

Max. 0.3 g/l BIAVIN 109

BIAVIN BLI (n · liq)
Special polymer amides
BIAVIN BLI is mainly used for dyeing wool and wool mixtures in all forms and on all common machines and dyeing apparatus. Particularly under boiling temperature conditions, permanent fixation of the wool (=“setting”) is decreased to a large extent. The mechanical properties of the wool are improved and thus the quality of the wool is increased.
BIAVIN BLI minimizes the permanent fixation of the wool when dyeing it as yarn. Thus a better yarn elasticity is achieved and this results in better weaving and knitting properties. Permanent fixation of the wool when dyeing it as piece goods is also decreased. This minimizes running creases and crease marks. The mechanical stability such as tearing and abrasion resistance is improved and a better dimension stability during absorption of the moisture results. Felting of the wool is minimized in all wet treatment steps and a more even appearance in all forms results.

Improvement of the running properties and gliding effect of wool and polyamide fibres:
1 – 2 g/l BIAVIN BLI
Reduction of wool felting:
1 – 2 g/l BIAVIN BLI
In extreme cases it is possible to work with higher concentrations without danger of retention.

For anti-setting effects in acid pH ranges up to pH 4: 1 – 2 g/l BIAVIN BLI

BIAVIN BPA (no · liq)
Polymeric amides
BIAVIN BPA is a universally applicable crease preventing agent and lubricant. Sensitive qualities have better gliding properties and have a lower tendency to form creases if there is less mechanical friction and less mechanical load. BIAVIN BPA increases the liquor viscosity and therefore more liquor adheres to the product. The product is non-foaming and can be applied on all machines of cellulose dyeing and for all blends.
0.5 – 2 g/l BIAVIN BPA in long liquors,
1 – 2 g/l BIAVIN BPA in short liquors

BIAVIN DFG (a · liq)
Combination of polymer dispersion and sequestering agent
BIAVIN DFG is a crease preventing agent, lubricant and sequestering agent for cellulose fibres and cellulose fibre mixtures as well as for synthetic fibres by exhaust method. BIAVIN DFG gives good running properties and prevents creases on the material. The product also has a sequestering effect in an alkaline medium on hardening substances. Mechanical rubbing is reduced, the viscosity of the liquor is increased and the fabric tends less to crease formation. A part of the product remains on the fabric which improves the sewability. The application quantities depend on the machine, the substrate and the liquor ratio: 1 – 3 g/l BIAVIN DFG

BIAVIN PCV (a · liq)
Phosphor acid ester
Outstanding fibre/fibre gliding agent that can prevent the formation of creases in pretreatment or in the dyeing bath at room temperature or at higher temperatures (130 – 140°C) of cellulosic and synthetic fibres. BIAVIN PCV gives synthetic materials an antistatic effect and improves the handle when applied in aftertreatment. BIAVIN PCV is low-foaming so that it can be applied on jets very well. BIAVIN PCV impairs neither the dyestuff yield nor the light fastnesses and the fastnesses of dispersion dyes when used in aftertreatment. BIAVIN PCV should be added at the beginning of pretreatment or dyeing as follows:
0.5 – 2 g/l BIAVIN PCV in long liquors
1 – 2 g/l BIAVIN PCV in short liquors

BIAVIN TCC (n · liq)
Polyethylene emulsion
Crease preventing agent and lubricant for cellulose fibres, mixtures and synthetic fibres. It is particularly suitable for microfibres and blends with elastane. BIAVIN TCC is low foaming and can be used in dyeing on all machines.
Application quantities:
0.5 – 2 g/l BIAVIN TCC

CHT-DISPERGATOR SMS (a · liq)
Aromatic sulphonates
Universally applicable dispersing agent, levelling agent and special stripping agent. CHT-DISPERGATOR SMS has an outstanding dispersing effect in a broad pH range. Handle of the treated fabric is not impaired at all.
The product is non-foaming.
1 – 4 g/l CHT-DISPERGATOR SMS

CHT-DISPERGATOR XHT-S (a/n · liq)
Preparation of polyglycol ether derivatives
Low-foaming and APEO-free dispersing/levelling agent for dyeing polyester and blends. CHT-DISPERGATOR XHT-S stands out for its very good dispersing and levelling capacity. It promotes the fine distribution and thus migration of disperse dyes throughout the entire temperature range and in this way prevents dyestuff agglomerations. Its outstanding property is stabilisation of the dispersion. Problems with unlevelness due to lack of dispersion stability can be solved with CHT-DISPERGATOR XHT-S. Light fastness of polyester dyed with CHT-DISPERGATOR XHT-S is not impaired.
0.5 – 3 g/l CHT-DISPERGATOR XHT-S (depending on the application)

CHT-FLOCKUNGSMITTEL ACL (a · gran)
Modified polyacrylamide
Flocculant for decolorizing wastewater in combination with cationic flocculants. CHT-FLOCKUNGSMITTEL ACL accelerates the sedimentation of flocculated wastewater contents, makes filtration easier and leads to a higher dry content of the mud. A 0.1 % solution of CHT-FLOCKUNGSMITTEL ACL is added to the flocculated substance after dyeing.

CHT-FLOCKUNGSMITTEL CV (c · liq)
Condensation product containing nitrogen
Flocculant for wastewater decolorizing in textile finishing. CHT-FLOCKUNGSMITTEL CV has a high affinity to anionic dyestuffs and is applied for removal of anionic dyes, most of all of reactive dyes and hydrolyzates. The precipitated dyestuffs are removed by sedimentation and filtration from the
Continuous aftertreatment:
reactive dyeing 1 – 3 g/l COTOBLANC KRS

Aftertreatment of prints:
prints with reactive dyes 2.5 – 5 g/l COTOBLANC KRS

COTOBLANC NSR (a · pow)
Mixture of organic and inorganic sequestering agents and dispersing agents COTOBLANC NSR pushes out non-fixed parts of the dyestuffs which stick to the surface and keeps them in the treatment liquor. A reabsorption can be prevented effectively. Being non-foaming COTOBLANC NSR can be used on all ranges. Due to its very good effectiveness COTOBLANC NSR allows savings of time, energy and rinsing baths. The product is free from surfactants; it does not have any surface tension and is not subject to the European regulation concerning detergents.

0.2 – 0.5 g/l COTOBLANC NSR

COTOBLANC PCS (a · liq)
Mixture of sequestrants and polymers with affinity to the dyestuff. Surfactant-free and non-foaming special product for removing reactive dyestuff hydrolysate from reactive dyestuffs and reactive prints from liquors containing electrolyte. Being a liquid product, COTOBLANC PCS is suitable for aftertreatment processes on continuous machines, yarn and piece dyeing machines. The product is easy to handle since it does not foam at all, is well miscible with cold water and easy dosing is ensured. A special feature of COTOBLANC PCS is its efficiency in the presence of electrolyte.

On light dyeings (> 1.5% dyestuff) an intermediate rinsing before the actual soaping process may be omitted by using 1 – 2 g/l COTOBLANC PCS. For soaping darker dyeings (> 1.5%) without intermediate rinsing, we recommend using COTOBLANC SEL or COTOBLANC SEL 200.

COTOBLANC RS (no · pow)
Colloidal system free of surfactants. Special non-foaming product to remove non-fixed dye pigments. Particularly suitable to aftersoap vat dyeings. COTOBLANC RS removes non-fixed dyes and dyes adhering on the surface from the material, disperses them and prevents them from reabsorption. The product is free from surfactants and absolutely foam-free. It does not have surface tension and is not subject to the European regulation concerning detergents.

0.2 – 1.5 g/l COTOBLANC SEL 200

Piece dyeing machines:
0.3 – 2 g/l COTOBLANC SEL

COTOBLANC SEL 200 (a · liq)
Mixture of sequestrants and polymers with affinity to the dyestuff. COTOBLANC SEL 200 is chemically comparatively, but more concentrated than COTOBLANC SEL and therefore has different application quantities.

Continuous treatment:
0.3 – 1.5 g/l COTOBLANC SEL 200

Piece dyeing machines:
0.2 – 1.5 g/l COTOBLANC SEL 200
EGASOL MD (a · liq)
Aromatic carboxylic acid ester
Low foaming levelling agent for polyester in the HT range with levelling, dispersing and migrating properties. EGASOL MD has an affinity to dyes and fibres, and it has a dyeing accelerating effect. Due to the dyeing accelerating and levelling effect EGASOL MD is also well suited for polyester microfibres.
Application quantity: 0.5 – 2 %

EGASOL SF (no · liq)
Inorganic buffer solution
EGASOL SF is used as an alkali donor for reactive dyeing on CEL and its blends. EGASOL SF guarantees an optimum pH control throughout the entire dyeing process. Approx. 1.5 – 3.5 g/l EGASOL SF depending on the colour depth.

EGASOL UP (a · liq)
Aromatic carboxylic acid ester
During heating up EGASOL UP makes dispersion dyes to be synchronously absorbed. Furthermore, EGASOL UP improves the migration capacity of dyes, so that levelled dyeings can be supplied. Due to its excellent dispersing effect EGASOL UP prevents agglomerations of dispersion dyes. The application of additional dispersing or levelling agents is not absolutely necessary. EGASOL UP has a good oil emulsifying effect. Oily soiling caused by greases or coning oils of looms and knitting machines is emulsified and dispersed by corresponding application quantities applied for dyeing even without pretreatment, so that there are no markings in the end. The product keeps high oil quantities emulsified during dyeing under HT conditions, without any stain formation. EGASOL UP is low foaming and excellently suited to be applied on jets and overflow machines. For thread dyeing we recommend applying CHT-DISPERGATOR HXT-S due to its improved dispersion stability and oligomer dispersion in combination with EGASOL UP. There is no influence on the light fastness properties of the polyester dyed with EGASOL UP with application quantities of 0.5 – 2.0 g/l. The product can be used for dyeing automotive parts. For dyeing Trevira CS, microfibres and Coolmax EGASOL UP is also suited, for darker shades the addition of a diffusion accelerator may be necessary.
1 – 2 % EGASOL UP

INTENSOL OLI (n/c · liq)
Quaternary ammonium compound
INTENSOL OLI has the characteristic to saponify oligomers in the presence of alkali at temperatures between 80 °C and 130 °C. The various components are mixed in such a way that a reliable boiling out of apparatus and machines is guaranteed. Deposits of dyestuffs, oligomers, preparations and hardeners are dissolved and dispersed by the precipitation inhibitors so that they do not redeposit in the machine parts when drained.

Machine cleaning at the boil:
2 – 5 g/l INTENSOL OLI
Reductive aftercleaning:
1 – 3 % INTENSOL OLI

HEPTOL SF 4 (a · liq)
Synergetic mix of different phosphonates
HEPTOL SF 4 has a very high sequestering power on alkaline earth ions and prevents the formation of alkaline earth silicates, alkaline earth carbonates and alkaline earth hydroxides and of heavy metal ions in an alkaline medium.
HEPTOL SF 4 can be applied as sequestering agent in processes of pretreatment and dyeing.
0.5 – 3 g/l HEPTOL SF 4 depending on the metal content

KERIOLAN A2N (d · liq)
Polyglycol ether derivative
Leveling agent for dyeing wool and wool blends. The product controls the absorption rate of dyestuffs and increases their migration properties, so that even dyeings are achieved. KERIOLAN A2N does not impair the fastness level of the dyeings. If PAN/WO blends are dyed with cationic or anionic dyes according to the single-bath dyeing process, KERIOLAN A2N will guarantee a good dye bath stability due to its good dispersing effect.
0.5 – 2 % KERIOLAN A2N

MEROPAN BRE (no · liq)
Inorganic salt
MEROPAN BRE is applied for single-bath, two-step oxidative bleaching and dyeing of reactive dyestuffs on cellulose fibres. MEROPAN BRE quantitatively destroys the residual peroxide after the bleach so that it is possible to add reactive dyestuff to the same liquor and to dye. The process technique is especially interesting when reactive hot dyeing processes are used. A slight surplus of MEROPAN BRE does not impair the subsequent dyeing. The application quantity of MEROPAN BRE is usually twice as much as the residual peroxide after the bleach (H₂O₂ 35%). The necessary quantity of MEROPAN BRE can be calculated if you know the residual peroxide quantity resp. if this value can be determined by means of titration.

MEROPAN CIT (a · liq)
Organic/inorganic buffer mixture
Buffer for PES-dyeing with good sequestering, dispersing properties. MEROPAN CIT has a high binding capacity of heavy metal ions. It allows to maintain a constant slightly acid pH range (4.5 – 5.5). Metal complex dyestuffs are not influenced.
0.5 – 2 g/l MEROPAN CIT

MEROPAN DA 200 (a · liq)
Polycarboxylic acids and modified phosphonates
MEROPAN DA is a protective colloid with sequestering properties for hardening agents when prewashing, dyeing and aftersoaping cellulose and cellulose fibre blends. It disperses the cotton accompanying substances insoluble in alkaline liquors. Dyestuffs containing metal are not stripped. MEROPAN DA is non-foaming and has no dyestuff retaining property.
1 – 4 g/l MEROPAN DA

MEROPAN DA 200 (a · liq)
Polycarboxylic acids and modified phosphonates
MEROPAN DA 200 is the double concentrated form of MEROPAN DA.

MEROPAN PDE (a · liq)
Polycarboxylic acids and modified phosphonates
MEROPAN PDE is a protective colloid with sequestering properties for hardening agents when prewashing and dyeing cellulose and cellulose fibre blends. MEROPAN PDE disperses the cotton accompanying substances insoluble in alkaline liquors. Dyestuffs containing metal are not stripped. MEROPAN PDE is non-foaming and has no dyestuff retaining property.
1 – 4 g/l MEROPAN PDE
MEROPAN EF 200 (n · liq)
Special esters
Acid donor when dyeing polyamide and wool. MEROPAN EF 200 is slowly saponified during the heating and boiling phase of the dyeing process. The acid being released in this way slowly and evenly moves the pH value into the acid range. Thus, favourable conditions for achieving even dyeings are created. In combination with suitable levelling agents (e.g. SARABID IPD, SARABID IPF, SARABID IPM and KERIOLAN A2NI), an excellent colour levelness is achieved.
0.25 – 1 ml/l MEROPAN EF 200

MEROPAN EW [a · liq]
Proteolytic products
Fibre protecting and levelling agent for wool dyeing. If used in the dyeing bath MEROPAN EW will prevent water-soluble accompanying substances from being removed from the wool. The characteristic features of the wool concerning softness, gloss and elasticity are preserved. Furthermore, the levelling behaviour of the wool dyestuffs is improved.
2 – 3% MEROPAN EW

MEROPAN KP (no · liq)
Mixture of organic acids and salts
MEROPAN KP is a phosphate-free buffer and is applied to adjust pH values to approx. 3.5 – 7. The product is applied in dyeing baths for polyamide, polyamide carpets, polyester and wool. MEROPAN KP makes sure the pH value remains stable during the dyeing process. The product forms complexes with heavy metal ions and prevents changes of colour shade when applying dyestuffs containing iron or copper. Metalliferous dyes are not impaired by MEROPAN KP and the product can be pumped. The application quantities depend on the water quality and the additions to the dyeing liquors.
With 0.5 – 1 g/l MEROPAN KP pH values between 4 – 5.5 are achieved.
With 1.5 – 3 g/l MEROPAN KP pH values between 3 – 3.5 are achieved.

MEROPAN LAT (a · liq)
Nitrobenzene sulphonate
MEROPAN LAT is applied as weak oxidation agent in textile finishing. It prevents negative influences of reducing effects in the treatment baths when scouring and dyeing. In vat dyeing the product is used for the oxidation of dyestuffs.
3 – 6 g/l MEROPAN LAT

MEROPAN XR GRANULAT (a · gran)
Sodium-m-nitrobenzene sulphonate
MEROPAN XR GRANULAT is used as a mild oxidising agent for textile finishing and prevents the unwelcome reducing effects during the various finishing steps. In direct and reactive dyeing MEROPAN XR GRANULAT prevents the dyestuff from boiling off in direct and reactive dying processes. In the pad steam process with direct and reactive dyes, MEROPAN XR GRANULAT avoids damages caused by chemicals which are contained in the steam. For vat dyeing it is used as mild oxidising agents.
1 – 2 g/l MEROPAN XR GRANULAT for reactive and direct dyeing.
5 – 10 g/l MEROPAN XR GRANULAT for the pad-steam process with reactive dyes.
approx. 3 g/l MEROPAN XR GRANULAT in vat dyeing during oxidation

MIGRASOL SAP [a · liq]
Aqueous solution of a polymer
Na-acrylamide/acrylate
Migration inhibitor for continuous dyeing. MIGRASOL SAP prevents migration of disperse, vat, sulphur and pigment dyes in pad dyeing procedures on cotton, polyester and their blends.
Due to the better penetration and because of the lower surface migration, a more even fabric appearance is obtained. MIGRASOL SAP is most efficient in pH ranges between 5 and 9.
MIGRASOL SAP can be rinsed out easily and is non-foaming.

Cotton fabric:
10 – 15 g/l MIGRASOL SAP
Synthetic fibres:
10 – 20 g/l MIGRASOL SAP
PES/CO blends:
5 – 15 g/l MIGRASOL SAP

NEUTRACID BO 45 [a · liq]
Organic/inorganic buffer mix
Slightly acid buffer, preferably for polyester and wool dyeings in a pH range of 4 – 5. The product has an outstanding buffer capacity which guarantees the highest possible pH constancy in dyeing baths.
1 – 2 ml/l NEUTRACID BO 45 (polyester dyeings)
2 – 5 ml/l NEUTRACID BO 45 (wool dyeings; depending on the wool quality a stronger buffer such as MEROPAN KP may have to be added). The product is also highly suitable for optically brightening polyamide/cellulose mixtures.
0.5 – 2 ml/l NEUTRACID BO 45

PAFIX No1 / PAFIX No1 CONC. [a · liq]
Condensation product of aromatic sulphonic acids
PAFIX No1 / PAFIX No1 CONC. is an all-round fixing agent for PA dyeings. Being a phenol-free product PAFIX No1 / PAFIX No1 CONC. is excellently suited both for standard shades and for brilliant PA dyeings with fluorescent dyestuffs.
PAFIX No1 / PAFIX No1 CONC. has the following advantages:
- Stable to acids: can be dosed, stable to jets, suited for continuous procedures (PA tape dyeing)
- Heat-stable: subsequent heat-setting or steaming processes do not influence the effects or if so, only to a minor extent
- Hardly any influence on the shade or on yellowing and therefore ideal for pastel shades and brilliant colours
- Neutral with regard to the light fastness
The post-treatment process with PAFIX No1 / PAFIX No1 CONC. must be adjusted to the corresponding shade.

Standard shades:
2 – 4% PAFIX No1, pH 4 – 5, 70 – 80 °C
2 – 3% PAFIX No1 CONC.
Brilliant fluorescent dyestuffs:
2 – 5% PAFIX No1, pH 5.5*, 65 °C*
2 – 4% PAFIX No1 CONC.*
* For further details, see technical leaflet

REDULIT GIN [a · liq]
Glucose mix with dispersing agents
REDULIT GIN is a liquid reduction agent mix for aftercleaning polyester dyeings. REDULIT GIN has a reductive effect in the alkaline pH range. After dyeing, the bath is cooled down to 70 – 80 °C. In this bath the pH value is adjusted alkaline. REDULIT GIN is added to this bath. The dispersing agents contained in this product additionally improve the fastness level. Unfixed and destroyed dyestuff can be detached more easily due to the dispersing and can be kept in the treatment liquor. For very deep shades the reductive cleaning should be carried out in a separate bath. REDULIT GIN does not foam so that it can be applied on all dyeing machines. Due to the stability to
air oxygen, it can also be easily applied on jets and open systems. REDULIT GIN also dispenses oligomers. In case of extreme oligomer problems, we recommend adding 3% CHT DISPERGATOR XHT-S or 2 g/l INTENSOL OLI to the dyeing bath.

REDULIT GIN is sulphur-free and is based on renewable raw materials. REDULIT GIN is easily biodegradable and has little odour.

**Reactive cleaning:**

4 g/l NaOH 50 °Bé + 2 g/l REDULIT GIN, 20 minutes, 80 °C

**REDULIT RED (no · liq)**

Sulphinic acid derivative REDULIT RED is a reduction agent for afterscouring PES in acid dyeing baths. It is also well suitable for the reactive cleaning of polyester with wool, cotton, polyacrylonitrile etc. The application amount of REDULIT RED depends on the depth and the dyestuff components. After cooling down the dyeing bath to 70 – 80 °C, 2 ml/l acetic acid 60% are added.

**For medium shades:**

1 – 1.5 ml/l REDULIT RED

**For dark shades:**

1.5 – 2 ml/l REDULIT RED

**RETINOL M (n · liq)**

Polyfunctional nitrogen compound RETINOL M can be used for stripping dyings in blind vat and for pulling down dyings which turned out too dark. Good stripping and pulling down effects are mainly achieved with vat, sulphur, direct and reactive dyestuffs. RETINOL M is also applied for washing out prints. Due to the dyestuff affinity, a staining of the white can be prevented.

1 – 3 g/l RETINOL M for pulling down,
2 – 5 g/l RETINOL M for stripping in the blind vat, approx. 2 g/l RETINOL M for washing out prints

**REVOFIX WET (c · liq)**

Polyurethane dispersion Distinctly improves the dry rubbing fastness and especially the wet rubbing fastness on CEL and synthetic fibres. The product is applied for the aftertreatment of dyings and prints. REVOFIX WET is universally applicable. Main application fields are PES/dispersion, CEL/reactive, vat, sulphur, pigment.

Preliminary tests have to be carried out on Indigo to check if the necessary fastnesses are impaired.

**Exhaust process:**

3.0 – 5.0% REVOFIX WET

**Padding Process:**

30 – 40 g/l REVOFIX WET

Its compatibility with softeners and easy-care finishes has to be checked in preliminary trials.

**REVWIN ACP (c · liq)**

Polyammonium compound

REVWIN ACP improves the wash fastness and wet fastnesses of dyings with reactive and direct dyestuffs on natural and regenerated cellulose fibres. REVWIN ACP meets highest fastness demands made to an aftertreatment agent today.

2 – 3% REVWIN ACP

**REVWIN DMT-N (c · liq)**

Polyammonium compound

REVWIN DMT-N improves the wet fastness and wash fastness of dyings with reactive dyestuffs on cellulose fibres. REVWIN DMT-N highly improves the wash fastness at 60 °C of reactive dyings, especially in critical reactive red and scarlet ranges.

2 – 3% REVWIN DMT-N

**REVWIN FSN (c · liq)**

Polyammonium compound

REVWIN FSN is applied as cationic aftertreatment agent with affinity to the fibre for improving the wash fastnesses of dyings with direct and reactive dyestuffs on cellulose fibres. Aside from the good wash fastness improvement, the contact fastnesses of direct and reactive dyestuffs on cellulose fibres are improved very much.

REVWIN FSN can be applied in exhaust as well as in padding procedures.

2 – 3% REVWIN FSN

**REVWIN KF (a · liq)**

Aromatic sulphonate

REVWIN KF is a universal aftertreatment agent to improve the wet fastness properties of polyamide dyings and prints. An outstanding characteristic of the product is the enormous stability to acids, jet and PA levelling agents. It allows a one-bath aftertreatment in the cooling down dyeing bath with SARABID IPM as levelling agent. In case of application in a new aftertreatment bath with intermediate rinsing, all currently used PA levelling agents can be applied. Good improvement of washfastness of light to medium colour shades up to washing at 40 °C.

3 – 5% REVWIN KF

**REVWIN KMB (a · liq)**

Aromatic sulphonate

REVWIN KMB is applied for one-bath dyeing and fastness improving aftertreatment of polyamide. When dyeing polyamide with acid dyestuffs, REVWIN KMB has a positive influence on the levelness. The fibre surface is covered with a coat that prevents the dyestuff from discharging. A better fastness level is achieved. The product is stable to shearing forces and to a large extent stable to non-ionic residual substances.

2 – 4% REVWIN KMB

**REVWIN KNR (a · liq)**

Condensation product of aromatic sulphonics acids

Fastness improving aftertreatment agent for PA dyeings.

Good washfastness improvement for light to medium colour shades up to washing at 50 °C.

2 – 4% REVWIN KNR

**SARABID 200 LL (n · fla)**

Alkyl polyglycol ether

Universally applicable dyeing auxiliary. SARABID 200 LL mainly serves as dyeing auxiliary with supplementary good washing, wetting and dispersing properties. SARABID 200 LL is applied advantageously for: dyeing of PAN with basic dyes, dyeing of wool with 1:1 metal complex dyes, dyeing of fibre mixtures of PAN/WO, PAN/CO and PAN/PES as well as semi-wool.

0.3 – 1 g/l SARABID 200 LL

**SARABID DLC (a · liq)**

Solution of polymers

Levelling agent for direct dyestuffs on cellulose fibres. Excellent levelling power without dye retention worth mentioning. The different absorbing power of direct dyestuffs is levelled out and a regular build-up behaviour is obtained. SARABID DLC is non-foaming and can be applied on all machines and apparatuses.

0.5 – 1.5 g/l SARABID DLC depending on colour depth and liquor ratio
SARABID DLO CONC. (n · liq)
Combination of special ethoxylates
Dyestuff affinity auxiliary for pretreatment, dyeing and aftertreatment. Due to its dyestuff affinity character, its good dispersing capacity and high washing power the product has a broad field of application, e.g.:
- pre-washing of CV, CA and synthetic fibres
- intermediate and aftercleaning of PES and PES/WO qualities
- dyeing of wool, semi-wool and PA fibres
1 - 2 g/l SARABID DLO CONC.
- bleaching of coloured goods for vat dyeings

SARABID IPF (n · psc)
Fatty amine polyglycol ether
SARABID IPF is a low foaming, highly efficient levelling agent for dyeing polyamide with acid and 1:2 metal complex dyes. SARABID IPF is a levelling auxiliary with affinity to the dyestuff. It controls the absorption speed of the dyestuffs in the heating up phase and promotes an even distribution of the dyestuffs in the migration phase. The product forms addition compounds with anionic dyestuffs which split again during the heating up and migration phase. This results in good bath exhaustion. SARABID IPF does not impair the wet and light fastnesses of the dyeings.
It increases contrasts when continually dyeing anionically differentiated polyamide carpet fibres. Depending on the kind of polyamide fibre and the dye class, SARABID IPF is applied to the dyeing bath alone or in combination with the levelling agent SARABID IPF which has affinity to the fibre. 0.5 - 3 % SARABID IPF

SARABID IPM (a · liq)
Aromatic sulphonate
Levelling agent with affinity to the fibre for streaky dyed polyamide fibres. SARABID IPM is a levelling agent with affinity to the fibre which levels out streaky dyeing of PA with acid and 1:2 metal complex dyes. SARABID IPM is active as anionic retarder. It slows down and evens out absorption of the dyestuffs during the heating up phase and levelled dyeings result. The product is low foaming and therefore well suited for application on jet dyeing machines. It does not impair the colour fastnesses or the light fastnesses. Depending on the polyamide fibre and dyestuff class, SARABID IPF is applied either alone in the dyebath or in combination with the dyestuff affine levelling agent SARABID IPD. 0.5 - 4 % SARABID IPF

SARABID LDR (a · liq)
Aromatic sulphonate
Levelling agent with affinity to the dyestuff when dyeing polyamide with acid and 1:2 metal complex dyestuffs. The product has affinity to the polyamide fibre as well as to the dyestuffs which guarantees an exact control of the dyestuff composition and a levelled dyeing, even on streaky dyed articles. SARABID LDR stands out for the following properties:
- low foaming
- affinity to dyestuff and fibre
- imparts best surface levelness
- even surface streakiness caused by the material
- absorption speed of the dyestuffs is decelerated and therefore even absorption of the dyestuffs
- good and even dyestuff penetration
- no impact on the wet and light fastnesses of the dyeings
1 - 4 % SARABID IPM

SARABID MIP (a · liq)
Special polymers
Levelling agent with affinity to the dyestuff and pigment. SARABID MIP has affinity to the dyestuff and pigment. Due to its chemical character SARABID MIP has a broad application field, e.g.:
- dispersing agent for dyeing PAN with basic dyes
- levelling agent for dyeing wool with 1:1 metal complex dyes
- dispersing and levelling agent for dyeing fibre mixtures: PAN/CO and PAN/WO
- levelling agent for dyeing semi-wool
Application in PA (ribbon) dyeing, particularly for aftercleaning on continuous wash compartments 0.5 - 2 g/l SARABID OL

SARABID PAW (n · liq)
Fatty amine polyglycol ether
Levelling agent with affinity to the dyestuff when dyeing with wool reactive dyes, particularly for tippy dyeing wool fibre qualities. 0.5 - 2 % SARABID PAW

SARABID VAT (c · liq)
Condensate containing nitrogen
SARABID VAT is used as foam-free, not surface-active levelling agent for vat dyes without wetting, washing and protective colloid effect. SARABID VAT does not have any retarding effect and has affinity to dyes. 0.5 - 1.5 g/l SARABID VAT with LR 1:30 - 1:15, 1 - 2 g/l SARABID VAT with LR 1:15 - 1:8, 2 - 5 g/l SARABID VAT with LR 1:8 - 1:3

SARAPOL BLU (a · liq)
Carboxylic acid ester
Ecological dyeing accelerator for polyester fibres, Trevira CS, cationically dyeable PES and PES/Wool blends. Wool staining during dyeing of PES/WO is low. SARAPOL BLU is
also suited for levelling out faulty dyeings. SARAPOL BLU is bluesign listed.
2 – 5% SARAPOL BLU at boiling temperature
1.5 – 3% SARAPOL BLU at 102 – 120°C
1 – 2% SARAPOL BLU at 120°C and higher temperatures

SARAPOL DLN (a · liq)
Aromatic esters and hydrocarbons
SARAPOL DLN is a dyeing accelerator for dyeing PES and PES mixtures with good emulsion stability and good levelling capacity. SARAPOL DLN causes little soiling of wool with selected suitable disperse dyes for dyeing PES/WO blends at 98 – 120°C (with wool protective agents), has good emission values and is well degradable in biological sewage plants. at 98 – 120°C: 1.5 – 4 g/l SARAPOL DLN, at 120 – 130°C: 0.5 – 1 g/l SARAPOL DLN

Si-CONTROL KKV (no · liq)
Modified silicate of soda with deposit inhibitors and dispersing agents
Si-CONTROL KKV is a modified silicate of soda and serves as alkali donor and buffering agent in reactive dyeing on cotton and its blends in all forms. Moreover, the product can be applied in alkaline peroxide bleaching processes. Si-CONTROL KKV has an outstanding peroxide stabilizing effect also in the presence of heavy metal traces like iron, copper and manganese. Si-CONTROL KKV stands out for its special inhibiting properties which prevent or distinctly decrease the alkaline earth silicate deposits on padders, rollers, machine parts and in wash compartments. Si-CONTROL KKV can be washed out much easier than silicate of soda 38°Bé which allows for an early neutralisation of the goods. Si-CONTROL KKV and silicate of soda 38°Bé have exactly the same alkalinity and buffering capacity and can be replaced 1:1. Application quantities in pad dyeing liquors: see the technical leaflet Application in pretreatment: e.g. bleaching on HT apparatus:
1 – 2% Si-CONTROL KKV

TUBACRYL RI [c · liq]
Quaternary ammonium compound
Levelling agent for basic dyes when dyeing PAN. TUBACRYL RI is a cationic retarding agent with blocking effect and a K value of 1.5. The product is especially suited if basic dyestuffs are used in the K-range of 1 – 3.5.
0.5 – 3% TUBACRYL RI

TUBACRYL RVR [c · liq]
Quaternary ammonium compound
Levelling and migration agent for basic dyestuffs when dyeing PAN. TUBACRYL RVR is a non-blocking levelling auxiliary with affinity to the dyestuff when dyeing PAN.
3 – 5% TUBACRYL RVR

VISCAVIN S 700 (a · pas)
Modified esters with ethoxylates and sulphonates
VISCAVIN S 700 is a levelling and dispersing agent for dyeing PES and PES blends with a considerable crease-prevention effect. Since the product does not foam, it can be applied on all dyeing machines.
1 – 2 g/l VISCAVIN S 700 are normally added to the dyeing liquors.
FINISHING AGENTS

FILLING AND STIFFENING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Polymeric dispersions</th>
<th>Film properties</th>
<th>Application fields</th>
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<tbody>
<tr>
<td>a</td>
<td>acrylic</td>
<td>very hard</td>
<td>stiffening finishing</td>
</tr>
<tr>
<td>psc</td>
<td>polyurethane</td>
<td>very soft, elastic</td>
<td>improvement of abrasion resistance and tear strength, antipilling, hydrophilicity, easy-care finishing</td>
</tr>
<tr>
<td>d</td>
<td>polyurethane</td>
<td>very soft, elastic</td>
<td>improvement of abrasion resistance and tear strength, antipilling, hydrophilicity, easy-care finishing</td>
</tr>
<tr>
<td>n</td>
<td>polyvinyl acetate</td>
<td>soft to medium hard</td>
<td>filling finishing</td>
</tr>
<tr>
<td>a</td>
<td>styrolacrylate</td>
<td>very soft</td>
<td>filling finishing, antipilling, improvement of abrasion resistance</td>
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<tr>
<td>n</td>
<td>polyvinyl acetate</td>
<td>hard, brittle</td>
<td>stiffening finishing, selvedge gumming</td>
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REACTANT RESINS AND CATALYSTS FOR EASY-CARE FINISHING

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
<th>Suitable for catalysis of</th>
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<tbody>
<tr>
<td>no</td>
<td>metal salt with organic additives</td>
<td>REAKNITT FF</td>
</tr>
<tr>
<td>no</td>
<td>aqueous solution of inorganic compounds</td>
<td>REAKNITT ZF</td>
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<th>Ionic character</th>
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<td>no</td>
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<tr>
<td>no</td>
<td>etherified DMDHEU for easy-care finishing (OEKO-TEX® Standard 100)</td>
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<tr>
<td>no</td>
<td>etherified DMDHEU with integrated catalyst system for easy-care finishing (OEKO-TEX® Standard 100)</td>
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<tr>
<td>no</td>
<td>DMeDHEU for formaldehyde-free easy-care finishing (OEKO-TEX® Standard 100)</td>
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### ADDITIVES FOR EASY-CARE FINISHING

<table>
<thead>
<tr>
<th>Additive</th>
<th>Ionic character</th>
<th>Chemical base</th>
<th>Hydrophilic</th>
<th>Bath stability with brightener</th>
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<tbody>
<tr>
<td>ARRISTAN 66</td>
<td>n/c</td>
<td>semi macro emulsion of an aminofunctional polysiloxane</td>
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<td>ARRISTAN 71</td>
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### SOFTENERS – EMULSIONS

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<tr>
<th>Additive</th>
<th>Ionic character</th>
<th>Contains silicone</th>
<th>Stable to shearing</th>
<th>Hydrophilic</th>
<th>Non-yellowing</th>
<th>Antistatic</th>
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<th>Bath stability with brightener</th>
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FINISHING AGENTS

### Ionic Character

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<tr>
<th>Ionic character</th>
<th>Contains silicone</th>
<th>Stable to shearing</th>
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<th>Bath stability with brightener</th>
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<tbody>
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<td>+</td>
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(Continuation of the table from page 36)

**SOFTENERS – CONCENTRATES**

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Solubility</th>
<th>Shearing stability</th>
<th>Hydrophilic</th>
<th>Free from yellowing</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBINGAL 3030</td>
<td>flakes</td>
<td>soluble in hot water</td>
<td>+++</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>TUBINGAL 4748</td>
<td>flakes</td>
<td>soluble in hot water</td>
<td>++</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>TUBINGAL 7023</td>
<td>liquid</td>
<td>soluble in cold water</td>
<td>+++</td>
<td>+++</td>
<td>-</td>
</tr>
</tbody>
</table>

The pH value of the liquor, the drying temperature and time and the ionic character of combination products have influence on the non-yellowing property of softeners. Preliminary tests on industrial conditions are indispensable.

The bath stability depends very much on the pH of the liquor. The shearing stability depends in individual cases on the pump capacity. Preliminary tests on jets are necessary.

**ANTISTATS**

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
<th>Padding procedure</th>
<th>Exhaust procedure</th>
<th>Permanence</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVISTAT 3 P</td>
<td>phosphoric acid ester</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AVISTAT AZ NEU</td>
<td>fatty acid condensation product</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>AVISTAT GPA</td>
<td>mixture of phosphoric acid esters with modified polyether</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>
FINISHING AGENTS

WET WAXING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>CEL</th>
<th>WO</th>
<th>PAN</th>
<th>PES</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUSTRAFFIN AS</td>
<td>psc</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>paraffin free, ester and wax based product in combination with fatty acid condensates</td>
</tr>
<tr>
<td>LUSTRAFFIN BA</td>
<td>psc</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>paraffin emulsion</td>
</tr>
<tr>
<td>LUSTRAFFIN BU</td>
<td>n</td>
<td>x</td>
<td></td>
<td></td>
<td>paraffin emulsion</td>
</tr>
<tr>
<td>LUSTRAFFIN DBL</td>
<td>n</td>
<td></td>
<td></td>
<td>x</td>
<td>fatty acid ester with selected spreading agents and optimal antistatic agents</td>
</tr>
<tr>
<td>LUSTRAFFIN LF CONC</td>
<td>psc</td>
<td>x</td>
<td></td>
<td></td>
<td>paraffin emulsion with polyethylene</td>
</tr>
<tr>
<td>LUSTRAFFIN SA 88</td>
<td>psc</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>paraffin emulsion</td>
</tr>
</tbody>
</table>

SEWING THREAD FINISHING AGENTS AND THEIR APPLICATION PROCEDURES

<table>
<thead>
<tr>
<th>Dyeing bath process</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PES, PES/PES and PES/CO</td>
<td>POLYAVIN 3000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exhaust process</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PA 6.6, PES, PES/PES, PES/CO and CV</td>
<td>POLYAVIN 3000 or POLYAVIN HELP</td>
</tr>
<tr>
<td>textured PES</td>
<td>POLYAVIN TEX</td>
</tr>
<tr>
<td>CO, linen</td>
<td>POLYAVIN CO</td>
</tr>
<tr>
<td>PES bonding</td>
<td>POLYAVIN BOND</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lick roller process</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PA 6.6, PES, PES/PES, PES/CO and CV</td>
<td>Room temperature</td>
</tr>
<tr>
<td></td>
<td>Anhydrous</td>
</tr>
<tr>
<td></td>
<td>POLYAVIN COLD</td>
</tr>
<tr>
<td></td>
<td>POLYAVIN UFP</td>
</tr>
<tr>
<td></td>
<td>Aqueous</td>
</tr>
<tr>
<td></td>
<td>POLYAVIN ANG 35</td>
</tr>
<tr>
<td></td>
<td>PES bonding</td>
</tr>
<tr>
<td></td>
<td>POLYAVIN BOND</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dosing pump application</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Room temperature</td>
<td>70 or 80 °C</td>
</tr>
<tr>
<td>Anhydrous</td>
<td>POLYAVIN UFP</td>
</tr>
<tr>
<td>Aqueous</td>
<td>POLYAVIN UFP</td>
</tr>
</tbody>
</table>
## RAISING AUXILIARIES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>CEL</th>
<th>WO</th>
<th>PA</th>
<th>PAN</th>
<th>PES Triacetate</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYAVIN PEN</td>
<td>n</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>polyethylene emulsion</td>
</tr>
<tr>
<td>TUBINGAL 220</td>
<td>n</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>fatty acid condensate</td>
</tr>
<tr>
<td>TUBINGAL HWS</td>
<td>psc</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>functional polysiloxane with additives</td>
</tr>
<tr>
<td>TUBINGAL RNJ</td>
<td>n</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>wax emulsion with fatty acid condensates</td>
</tr>
<tr>
<td>TUBINGAL RSK</td>
<td>psc</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>fatty acid condensate containing silicone with special additives</td>
</tr>
</tbody>
</table>

All gloss finishing agents have to be applied in combination with a mechanical finishing e.g. on calender, so that the produced gloss is supported and increased.

## GLOSS FINISHING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRISTAN 66</td>
<td>n/c semi macro emulsion of an aminofunctional polysiloxane</td>
</tr>
<tr>
<td>ARRISTAN 71</td>
<td>n semi macro emulsion of a modified aminosiloxane</td>
</tr>
<tr>
<td>POLYAVIN PEN</td>
<td>n polyethylene emulsion</td>
</tr>
<tr>
<td>TUBINGAL RNJ</td>
<td>n wax emulsion with fatty acid condensates</td>
</tr>
<tr>
<td>TUBINGAL RRW</td>
<td>psc fatty acid condensate with additives</td>
</tr>
</tbody>
</table>

## SANFORISING AUXILIARIES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLYAVIN PEN</td>
<td>n polyethylene emulsion</td>
</tr>
<tr>
<td>TUBINGAL HWS</td>
<td>psc functional polysiloxane with additives</td>
</tr>
<tr>
<td>TUBINGAL RNJ</td>
<td>n wax emulsion with fatty acid condensates</td>
</tr>
</tbody>
</table>
# HYDROPHILIZING AGENT FOR SYNTHETIC FIBRES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
<th>CEL</th>
<th>WO</th>
<th>PA</th>
<th>PAN</th>
<th>PES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRISTAN AIR</td>
<td>hydrophilic polyester copolymer with soil release effect</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# NON-SLIP FINISH

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
<th>Permanence</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARRISTAN CPU</td>
<td>polyurethane dispersion</td>
<td>+++</td>
</tr>
<tr>
<td>ARRISTAN EPD</td>
<td>polyurethane dispersion</td>
<td>+++</td>
</tr>
<tr>
<td>FLEXOFIX FL</td>
<td>modified polysilicic acid compound</td>
<td>-</td>
</tr>
</tbody>
</table>

# WEIGHTING AGENTS

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Chemical base</th>
</tr>
</thead>
<tbody>
<tr>
<td>PESOFIX WM</td>
<td>combination of inorganic and organic substances</td>
</tr>
</tbody>
</table>
ARRISTAN 66 (n / c · liq)
Semi macro emulsion of an aminofunctional polysiloxane
Silicone elastomer for improving the handle of finishes of CEL, WO and synthetic fibres as well as their blends. Soft handle as well as outstanding resiliency and highest sewability improvement stand out for fabrics finished with ARRISTAN 66. ARRISTAN 66 is highly suitable for easy-care finishes. The product is sensitive to alkali so that the pH values of the liquor have to be between 5 – 6. ARRISTAN 66 stands out by giving a good running stability in padding processes.
**Padding process:**
10 – 30 g/l ARRISTAN 66

ARRISTAN 71 (n · liq)
Semi macro emulation of a modified aminosiloxane
ARRISTAN 71 imparts a very pleasantly soft and smooth handle to textiles, also to pigment printed fabrics. Full white articles can be easily finished without yellowing. The product can be combined with special optical brighteners as well as with selected pigment dyes. ARRISTAN 71 has excellent running stabilities on the padder.
**Padding process:**
10 – 30 g/l ARRISTAN 71

ARRISTAN AC 54 FF (a · liq)
Polyacrylate dispersion
Finishing agent for stiffening and improving the abrasion resistance. ARRISTAN AC 54 FF forms very hard films.
**Padding Process:**
10 – 300 g/l ARRISTAN AC 54 FF

ARRISTAN AIR (n · liq)
Polyester copolymer
Hydrophilic agent mostly for synthetic fibres of polyester and polyamide. Excellent hydrophilic effects are obtained, so that the electrostatic charging can also be reduced. ARRISTAN AIR is very well suitable for functional textiles to guarantee an optimal moisture transport. The handle of the fabric becomes smoother and sleeker. The removability of greasy stains is increased (soil release effect). ARRISTAN AIR does not impair the whiteness degree of fabrics treated by optical brighteners, and it is stable to delicate washing.
**Padding process:**
20 – 50 g/l ARRISTAN AIR

Exhaust process:
2 – 5% ARRISTAN AIR

ARRISTAN CPU (psc · liq)
Micro dispersion of a polyurethane
Polymeric finishing agent for padding as well as for exhaust processes. Already at standard drying temperatures ARRISTAN CPU forms very soft, highly elastic films. The product has many application possibilities for finishing textiles. It can be used as handle modifier for achieving interesting handle effects, as additive in easy-care finishes, for improvement of the technological properties (e.g. abrasion resistance, pilling etc.) as well as for increasing the resiliency.
**Padding process:**
20 – 100 g/l ARRISTAN CPU

ARRISTAN EPD (d · liq)
Micro dispersion of a polyurethane
Polymeric finishing agent for the padding procedure. Due to its chemical structure the product is self-crosslinking and forms very soft, resilient films without addition of special catalysts. ARRISTAN EPD is a multi-purpose additive for the finishing of textiles. It is applied as additive in the easy-care finishing to improve the crease recovery, as additive modifying the handle to create interesting effects and as additive to improve technological properties (e.g. abrasion fastness, pilling etc.).
**Padding process:**
20 – 100 g/l ARRISTAN EPD

ARRISTAN HM (n · liq)
Vinylacetate copolymer in aqueous dispersion
ARRISTAN HM is a finishing agent for filling finishes with good washing stabilities. Higher application amounts do not have a stiffening effect on the product, its full handle and elasticity remains. ARRISTAN HM does not cause post-yellowing on pure white fabrics.
**Padding process:**
2 – 10 g/l as filling agent e.g. for clothing fabrics
10 – 50 g/l for cotton or linen articles

ARRISTAN NIO (n · liq)
Micro dispersion of a polyurethane
Polymeric finishing agent for versatile applications. ARRISTAN NIO is applied
ARRISTAN SAC 10 FF [a · liq]
Styrene acrylate dispersion
Finishing agent for versatile application possibilities like filling finish, anti-pilling agent, agent to improve the abrasion possibilities like filling finish, anti-pilling finishes, and self-crosslinking and forms soft and elastic films without fixation process.

Padding process: 
30 – 80 g/l ARRISTAN NIO

ARRISTAN SAC 10 FF [a · liq]
Finishing agent to improve the abrasion resistance. ARRISTAN SAC 10 FF forms very soft films.

Padding process: 
10 – 100 g/l ARRISTAN SAC 10 FF

ARRISTAN WT [n · liq]
Polyvinyl acetate dispersion
Filling and stiffening finishes which are stable to washing can be made with this product. ARRISTAN WT forms medium hard films, is free from formaldehyde and therefore very suitable for shape wear.

Padding process: 
5 – 200 g/l ARRISTAN WT

AVISTAT 3 P [a · liq]
Phosphoric acid ester
AVISTAT 3 P gives excellent antistatic effects on synthetic fibres and imparts a neutral handle. AVISTAT 3 P does not cause yellowing, not even at high drying and fixing temperatures. The antistatic effect is not impaired by drying and fixation processes. AVISTAT 3 P does not influence the shade or the fastness level of dyings.

Padding process: 
5 – 10 g/l AVISTAT 3 P

Exhaust process: 
20 – 50 g/l AVISTAT 3 P

AVISTAT AZ NEU [c · liq]
Fatty acid condensation product
Antistatic agent with softening properties. The handle is full and voluminous. AVISTAT AZ NEU is suitable for all synthetic fibres. Best exhaust behaviour is between pH 6 – 6.5. During fixation the product diffuses into the fibre and the antistatic effect decreases.

Padding process: 
5 – 10 g/l AVISTAT AZ NEU

Exhaust process: 
1 – 2 % AVISTAT AZ NEU

AVISTAT GPA [a/n · liq]
Mixture of phosphoric acid esters with modified polyether
Antistatic agent stable to washing and dry cleaning for synthetic fibres and their mixture with natural fibres. Outstanding antistatic effects are achieved on synthetic fibres using AVISTAT GPA. It imparts a neutral handle. AVISTAT GPA does not turn yellow with high drying and curing temperatures. The antistatic effect is not impaired by drying and fixation. AVISTAT GPA does not influence the shade and the fastness level of dyings.

Padding process: 
5 – 30 g/l AVISTAT GPA

Exhaust process: 
1 – 3 % LUSTRAFFIN AS

LUSTRAFFIN AS is particularly suitable for polyester and polyacrylics.

CHT-KATALYSATOR ABT [no · liq]
Aqueous solution of inorganic compounds
CHT-KATALYSATOR ABT is a special catalyst for the formaldehyde-free easy-care finishing, and it is recommended exclusively for REAKNITT ZF. The garlic odour occasionally arising with magnesium chloride is clearly reduced with application of CHT-KATALYSATOR ABT.

Application quantity: 
10 % CHT-KATALYSATOR ABT with reference to the amount of the crosslinking agent of REAKNITT ZF

CHT-KATALYSATOR FS [no · liq]
Metal salt with organic additives
The product is a special catalyst for the easy-care finishing with low content of formaldehyde. It considerably reduces the content of free formaldehyde on textile according to Japanese Law 112 in comparison to the conventional magnesium chloride.

Application quantity: 
30 – 40 % CHT-KATALYSATOR FS with reference to quantity of crosslinking agent of e.g. REAKNITT FF

FLEXOFIX FL [c · liq]
Modified polysilicic acid compound
Non-slip finishing agent for all materials, especially for lining fabrics.

Padding process: 
5 – 60 g/l FLEXOFIX FL

LUSTRAFFIN AS [psc · liq]
Paraffin free, ester and wax based product
in combination with fatty acid condensates
Yarn lubricant for all fibre kinds. Due to its distinct antistatic properties

LUSTRAFFIN DBL [n · liq]
Fatty acid ester with selected spreading agents and optimal antistatic agents
The product is applied for the lubrication of PES threads. Excellent gliding properties are obtained as well as a good antistatic effect. The oligomer binding power of LUSTRAFFIN DBL prevents dusting in subsequent processes.

Exhaust process: 
1 – 3 % LUSTRAFFIN DBL

LUSTRAFFIN LF CONC [psc · liq]
Paraffin emulsion
Special product for the yarn lubrication if a high whiteness degree is demanded. LUSTRAFFIN LF CONC is stable up to pH 8 so that a high process safety is guaranteed. It is applied in a separate bath in the exhaust process.

Exhaust process: 
1 – 3 % LUSTRAFFIN LF

LUSTRAFFIN ZF [psc · liq]
Paraffin emulsion
Special product for yarn lubrication. The product serves as lubricant to increase the gliding properties of bleached or dyed yarns, so that a good handling is guaranteed. It is applied in a separate bath in the exhaust process.

Exhaust process: 
1 – 3 % LUSTRAFFIN ZF

EXHAUST AGENTS

AVISTAT AZ NEU (c · liq)
Paraffin free, ester and wax based product
in combination with fatty acid condensates
Yarn lubricant for all fibre kinds. Due to its distinct antistatic properties

FLEXTON B [liq]
Modified polyether
Non-slip finishing agent for all materials, especially for lining fabrics. FLEXTON B reduces the content of free formaldehyde on textile according to Japanese Law 112 in comparison to the conventional magnesium chloride.

Application quantity: 
30 – 40 % FLEXTON B with reference to quantity of crosslinking agent of e.g. REAKNITT FF

LUSTRAFFIN OS [c · liq]
Fatty acid ester with selected spreading agents and optimal antistatic agents
The product is applied for the lubrication of PES threads. Excellent gliding properties are obtained as well as a good antistatic effect. The oligomer binding power of LUSTRAFFIN OS prevents dusting in subsequent processes.

Exhaust process: 
1 – 3 % LUSTRAFFIN OS

LUSTRAFFIN AS [psc · liq]
Paraffin emulsion
Special product for yarn lubrication. The product serves as lubricant to increase the gliding properties of bleached or dyed yarns, so that a good further processing

Exhaust process: 
1 – 3 % LUSTRAFFIN AS

LUSTRAFFIN BA [psc · liq]
Paraffin emulsion
Special product for yarn lubrication. The product serves as lubricant to increase the gliding properties of bleached or dyed yarns, so that a good handling is guaranteed. It is applied in a separate bath in the exhaust process.

Exhaust process: 
1 – 3 % LUSTRAFFIN BA

LUSTRAFFIN BU [n · liq]
Paraffin emulsion
Special product for yarn lubrication. The product serves as lubricant to increase the gliding properties of bleached or dyed yarns, so that a good handling is guaranteed. It is applied in a separate bath in the exhaust process. The product is applied for the lubrication if a high whiteness degree is demanded. LUSTRAFFIN BU prevents dusting in subsequent processes.

Exhaust process: 
1 – 3 % LUSTRAFFIN BU

LUSTRAFFIN DBL [n · liq]
Fatty acid ester with selected spreading agents and optimal antistatic agents
The product is applied for the lubrication of PES threads. Excellent gliding properties are obtained as well as a good antistatic effect. The oligomer binding power of LUSTRAFFIN DBL prevents dusting in subsequent processes.

Exhaust process: 
1 – 3 % LUSTRAFFIN DBL

LUSTRAFFIN LF CONC [psc · liq]
Paraffin emulsion
Special product for the yarn lubrication in exhaust procedure. The yarns are excellently lubricated by extremely regular exhaustion of the product. In addition LUSTRAFFIN LF CONC is stable up to pH 8 so that a high process safety is guaranteed. It is applied in a separate bath in the exhaust process.

Exhaust process: 
1 – 3 % LUSTRAFFIN LF

LUSTRAFFIN SA 88 [psc · liq]
Paraffin emulsion
Special product for yarn lubrication. The product serves as lubricant to increase the gliding properties of bleached or dyed yarns, so that good further processing

Exhaust process: 
1 – 3 % LUSTRAFFIN SA 88

CHT 42
Padding process:

wool blends. The product is applied on the handle properties, mainly for wools and filling and weighting agent with soft substances. Combination of inorganic and organic PESOFIX WM (no · liq)

1 – 2 % LUSTRAFFIN SA 88

Exhaust process:

applied in a separate bath in the exhaust process.

is guaranteed in knitting. The product is applied in a separate bath in the exhaust process.

Exhaust process:

1 – 2 % LUSTRAFFIN SA 88

PESOFIX WM (no · liq)

Combination of inorganic and organic substances Filling and weighting agent with soft handle properties, mainly for wools and wool blends. The product is applied on the paddler.

Padding process:

20 – 150 g/l PESOFIX WM

POLYAVIN 3000 (c · liq)

Synergetic mixture of silicones, special lubricants and antistats Lubrication of man-made fibre sewing threads and core yarns in the dyeing bath or in fresh bath. Total bath exhaust at 70 – 75 °C, therefore also suitable for higher initial temperatures.

Exhaust process:

6 – 15 % POLYAVIN 3000

POLYAVIN ANG 35 (n · liq)

Synergetic mixtures of silicones, special lubricants and antistats Lubrication of sewing threads and embroidery yarns on the lick roller or by means of dosing pump. It is water based and confers low friction values and good heat protection.

Exhaust process:

2 – 4 % POLYAVIN ANG 35

POLYAVIN BOND (n · liq)

Polymer dispersion Bonding agent for PES sewing threads. POLYAVIN BOND has a sticking effect without influencing the friction coefficient and without stiffening, so that the textile character remains.

Exhaust process:

3 % POLYAVIN BOND

Lick roller:

50 – 100 g/l POLYAVIN BOND

POLYAVIN CO (c · liq)

Synergetic mixture of silicones, special lubricants and antistats Lubrication of CO sewing threads. It imparts excellent processing properties by decreasing the coefficient of friction without impairing the tensile strength.

Exhaust process:

5 – 10 % POLYAVIN CO

POLYAVIN COLD (no · liq)

Mixture of special silicones with special lubricants Non-aqueous product for the lubrication of sewing threads at room temperature for reducing the coefficient of friction.

Recommended pick-up:

2 – 5 % POLYAVIN COLD

POLYAVIN HELP (c · liq)

Synergetic mixture of silicones, special lubricants and antistatic agents Lubrication of sewing threads made of man-made fibres and their mixtures with cotton in the exhaust process. The product guarantees very high process safety in a broad pH range. As a result, complete bath exhaustion and a very even distribution of the product within the bobbin are achieved.

Exhaust process:

6 – 12 % POLYAVIN HELP

POLYAVIN PEN (n · liq)

Special polyethylene emulsion Additive to improve the sewability of all kind of fibres. Even on very fine knits the number of mesh breakages is considerably reduced or completely prevented. The handle of the goods is pleasantly soft. POLYAVIN PEN is excellently suitable for easy-care finishing and to improve the abrasion resistance and tear strength.

Padding process:

10 – 30 g/l POLYAVIN PEN

POLYAVIN TEX (c · liq)

Synergetic mixture of silicones, special lubricants and antistats The product is used as finishing for textured PES sewing thread. POLYAVIN TEX imparts excellent gliding and running properties, thus a very good sewability to the sewing threads by highly decreasing the coefficient of friction.

Exhaust process:

6 – 15 % POLYAVIN TEX

POLYAVIN UFP

Synergetic mixture of modified siloxane with special paraffins and waxes Sewing thread lubricant for application by means of dosing system at room temperature and at 70 – 80 °C. It can also be applied on the lick roller at room temperature. In this way very good heat protection and excellent sewability properties are achieved.

Recommended pick-up:

2 – 5 % POLYAVIN UFP

REAKNITT FF (no · liq)

Reactant resin with low formaldehyde content Crosslinking agent for the easy-care finish of fabrics made of cellulose fibres and their blends with synthetics. If used properly, very low formaldehyde contents will result on the fabric, so that OEKO-TEX® Standard 100 will be achieved (according to Japanese Law 112: formaldehyde < 75 ppm).

REAKNITT TIO (no · liq)

Reactant resin with integrated catalyst system with low formaldehyde content Due to the “one-component system” no catalyst needs to be added. Therefore the “handling” is clearly simplified. Easy-care effects achieved with REAKNITT TIO have a very good wash fastness because of the hydrolysis stability. Moreover, the finishes produce a neutral handle without stiffening the handle.

REAKNITT ZF (no · liq)

Formaldehyde free reactant resin The product is used for the formaldehyde-free easy-care finishing on cellulose fibres and their mixtures with synthetics. The dry and wet shrinking is improved by REAKNITT ZF and a very soft handle is obtained. Finishing effects which are fast to washing and dry cleaning are achieved.

TUBINGAL 220 (n · liq)

Fatty acid condensation product Non-ionic, universally applicable softener for all types of fibres. TUBINGAL 220 stands out for its excellent compatibility with brightening agents. When applied on white goods TUBINGAL 220 does not yellow. It is possible to combine it with reactant resins for anti-shrink and easy-care finishing. TUBINGAL 220 can be applied in the padding and exhaust process.

Exhaust process:

2 – 4 % TUBINGAL 220

Padding process:

20 – 40 g/l TUBINGAL 220
FINISHING AGENTS

TUBINGAL 3030 (n · fla)
Fatty acid condensation product
Non-ionic softener concentrate in flakes, soluble in hot water. The handle is very soft and TUBINGAL 3030 is very well compatible with white materials.
Exhaust process: 1 – 3 % TUBINGAL 3030
(stock emulsion of 12 %)
Padding process: 10 – 40 g/l TUBINGAL 3030
(stock emulsion of 12 %)

TUBINGAL 4748 (psc · fla)
Fatty acid condensation product
Softener concentrate in flakes easily soluble in hot water. A very soft and full handle is achieved.
Exhaust process: 2 – 4 % TUBINGAL 4748
(stock emulsion of 15 %)
Padding process: 20 – 4 % TUBINGAL 4748
(stock emulsion of 12 %)

TUBINGAL 7023 (c · liq)
Fatty acid condensation product
Liquid softener concentrate easily soluble in cold water. TUBINGAL 7023 is a hydrophilic softener for cellulosic fibres and their blends well suitable for terry cloth materials.
Exhaust process: 2 – 5 % TUBINGAL 7023
(stock emulsion of 15 %)
Padding process: 20 – 50 g/l TUBINGAL 7023
(stock emulsion of 15 %)

TUBINGAL 3S (n · liq)
Micro emulsion of a modified polysiloxane
TUBINGAL 3S is a special development for the soft handle finish of knits and wovens, particularly for synthetic fibres as well as their mixtures. An excellent soft handle can be achieved especially on polyester and polyamide. It can be applied on the padding as well as for the exhaust process. TUBINGAL 3S stands out for its very good compatibility with white and its minor impact on thermomigration of dispersion dyes.
Padding process: 10 – 40 g/l TUBINGAL 3S
Exhaust process: 1 – 3 % TUBINGAL 3S

TUBINGAL FMH (n · liq)
Micro emulsion of a modified aminosiloxane
The product is a pH stable micro emulsion (tested up to pH 9), which allows to minimise the risk of stains. In addition it has very good running properties, and it can also be applied in combination with optical brighteners and blueing dyes (preliminary tests are necessary). TUBINGAL FMH has hydrophilic character which guarantees a good rewettability to the fabric. TUBINGAL FMH clearly increases the easy-care finishing effects.
Padding process: 10 – 40 g/l TUBINGAL FMH

TUBINGAL HWS (psc · liq)
Functional polysiloxane with additives
TUBINGAL HWS is a softener for hydrophilic finishing of textile goods. The product stands out for its exceptionally soft, smooth handle and outstanding degree of whiteness. TUBINGAL HWS can be used in exhaust and padding processes. TUBINGAL HWS can be used in numerous application fields.
Exhaust process: 2 – 4 % TUBINGAL HWS
Padding process: 20 – 40 g/l TUBINGAL HWS

TUBINGAL ISP (psc · liq)
Micro emulsion of a modified aminopolyether siloxane
TUBINGAL ISP is a multi-functional textile softener with outstanding softness and distinct hydrophilic properties. The product is stable to yellowing and is tailor-made for today’s requirements in industrial use. Accordingly TUBINGAL ISP can be applied on a wide range of substrates.
Exhaust process: 1 – 4 % TUBINGAL ISP
Padding process: 20 – 40 g/l TUBINGAL ISP

TUBINGAL KRE (c · liq)
Fatty acid condensation product
Cationic standard softener for all fibre sorts. It is possible to obtain excellent handle effects with TUBINGAL KRE, especially on CO, PES, PA and PAN. On PAN fibres TUBINGAL KRE can be applied directly in the dyeing bath as finishing agent and crease-prevention agent. When dyeing PA carpets, the handle of the carpet will be smooth and slightly silky if TUBINGAL KRE is added. Due to its high affinity to the fibre, the product is preferably applied in the exhaust method.
Exhaust process: 1 – 3 % TUBINGAL KRE
Padding process: 10 – 40 g/l TUBINGAL KRE

TUBINGAL PURE (n · liq)
Polyurethane dispersion
Silicone-free soft handle agent for all kinds of fibres. TUBINGAL PURE stands out for a very soft handle; a good rewettability, combinability and compatibility with white materials. TUBINGAL PURE is stable to shear forces and can therefore be applied by exhaust procedure and by padding. TUBINGAL PURE can be applied in processes in which silicone containing softeners might have a disturbing effect.
Exhaust process: 2 – 4 % TUBINGAL PURE
Padding Process: 20 – 4 % TUBINGAL PURE

TUBINGAL RGH (c · liq)
Micro emulsion of an organomodified polysiloxane
The silicone micro emulsion combines the best shearing stability, pH stability (tested at pH up to 11), excellent white compatibility and hydrophilic character with core soft handle. Even on open-end yarns a smooth and soft handle is obtained. TUBINGAL RGH is combinable in easy-care finishing and with many brighteners (preliminary tests are recommended). The application field is large for this universally applicable product for knit fabrics and woven fabrics of cellulosic fibres, wool, synthetics and their blends.
Exhaust process: 1 – 4 % TUBINGAL RGH
Padding process: 10 – 40 g/l TUBINGAL RGH

TUBINGAL RMG (n · liq)
Fatty acid condensate with functional polysiloxane
Universal softener suitable for all kinds of fibres. The fabric gets a smooth handle and the sewability is improved. The product is well compatible with white and can be combined with optical brighteners (preliminary tests are recommended). Due to the good exhaust behaviour and the good shearing stability TUBINGAL RMG can be applied by exhaust process on all jets.
Exhaust process:
1 – 3 % TUBINGAL RMG
Padding process:
10 – 40 g/l TUBINGAL RMG

TUBINGAL RNJ (n · liq)
Wax emulsion with fatty acid condensation product
Special softener for woven and knit fabrics to improve the sewability. TUBINGAL RNJ can be used as processing aid for raising and emerizing as well as for compacting and sanforizing. The product is equally suited to be applied for white and coloured fabrics.
Exhaust process:
2 – 3 % TUBINGAL RNJ
Padding process:
20 – 40 g/l TUBINGAL RNJ

TUBINGAL RRW (psc · liq)
Fatty acid condensation product
Silicone free textile softener for exhaust and padding processes. The product is stable to jets, low foaming and largely resistant to yellowing. It provides the fabric with a pleasantly, smooth, soft handle and also optimises the sewability.
Exhaust process:
1 – 3 % TUBINGAL RRW
Padding process:
10 – 30 g/l TUBINGAL RRW

TUBINGAL RSK (psc · liq)
Fatty acid condensate containing silicone with special additives
TUBINGAL RSK is a pseudocationic, multifunctional softener. The product is low foaming, gives a special soft handle, a smooth surface and an optimum sewability. Due to these properties TUBINGAL RSK is preferably used in finishing of knitted fabrics.
Exhaust process:
1 – 4 % TUBINGAL RSK
Padding process:
10 – 30 g/l TUBINGAL RSK

TUBINGAL SMF (n / c · liq)
Highly concentrated silicone micro emulsion
TUBINGAL SMF is applied as high quality softener on all kind of fibres and is excellently suitable as additive in the easy-care finishing. It confers very soft and flowing touch. Application is by padding process.
Padding process:
20 – 40 g/l TUBINGAL SMF
### FIBRE AUXILIARIES

#### KEY
- **a** = anionic
- **c** = cationic
- **psc** = pseudocationic
- **n** = non-ionic
- **liq** = liquid
- **FDY** = Fully Drawn Yarn

#### SPIN FINISHES FOR POLYPROPYLENE FILAMENT

<table>
<thead>
<tr>
<th></th>
<th>Ionic character</th>
<th>CF textured</th>
<th>CF FDY</th>
<th>Tapes</th>
<th>BCF</th>
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<tr>
<td>DURON OF 2230</td>
<td>n-liq</td>
<td>x</td>
<td>x</td>
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<tr>
<td>DURON OF 2236</td>
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<td></td>
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<td>soft textile handle/not supporting gasfading/moderate fibre protection</td>
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<td>x</td>
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<tr>
<td>DURON OF 3201</td>
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<td>x</td>
<td>x</td>
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<td>scroopy handle, FDA*</td>
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<td>DURON OF 3206</td>
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<td></td>
<td>x</td>
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<td>low splash</td>
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<td>DURON OF 3217</td>
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<td></td>
<td>x</td>
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<td>soft textile handle/not supporting gasfading/excellent fibre protection</td>
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<tr>
<td>DURON OF 3225</td>
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<td></td>
<td>x</td>
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<td>speciality for supersoft carpet yarns</td>
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<tr>
<td>DURON TX 2080</td>
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<td>x</td>
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<td></td>
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<td>monofil finish/low emission coning oil (all fibre types)</td>
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* ingredients included in regulations for indirect food contact according to FDA
## Spin Finishes for Polypropylene Staple Fibre

<table>
<thead>
<tr>
<th>Fibres for yarn production</th>
<th>Fibres for nonwoven production</th>
<th>Shortcut fibres</th>
<th>Ionic character Appearance</th>
<th>Rotor spinning</th>
<th>Ring spinning</th>
<th>Needle-punched</th>
<th>Thermal bonded</th>
<th>Hydro-entangled</th>
<th>Notes</th>
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<tr>
<td>DURON K 3168</td>
<td></td>
<td></td>
<td>a-p</td>
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<td>low foaming antistat, FDA*</td>
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<td>DURON OS 1547</td>
<td></td>
<td></td>
<td>c-liq</td>
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<td></td>
<td></td>
<td>x</td>
<td>permanent hydrophilic, hygienic fibres</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td>x</td>
<td>hydrophobic, hygienic fibres, FDA and EU 10/2011**</td>
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<td></td>
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<td></td>
<td>x</td>
<td>low foaming, FDA*</td>
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<tr>
<td>DURON OS 3176</td>
<td></td>
<td></td>
<td>n-liq</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>not supporting gasfading</td>
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<td></td>
<td>n-liq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>strong crunchy handle</td>
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<td></td>
<td>n-liq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>low foaming, FDA and EU 10/2011**</td>
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<tr>
<td>DURON OS 4012</td>
<td></td>
<td></td>
<td>n-liq</td>
<td></td>
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<td></td>
<td>x</td>
<td>permanent hydrophilic, hygienic fibres</td>
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<tr>
<td>DURON OS 4022</td>
<td></td>
<td></td>
<td>n-liq</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>universal spin finish</td>
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</tbody>
</table>

* Ingredients included in regulations for indirect food contact according to FDA
** Ingredients included in regulations for indirect food contact according to FDA and EU 10/2011
### Spin Finishes for Polypropylene Spunbond

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Hygienic</th>
<th>Technical applications</th>
<th>Notes</th>
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<tr>
<td>DURON OF 1547</td>
<td>c-l</td>
<td>x</td>
<td>permanent hydrophilic, superior soft handle</td>
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<tr>
<td>DURON OF 4012</td>
<td>n-l</td>
<td>x</td>
<td>permanent hydrophilic</td>
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<tr>
<td>DURON SL 2206</td>
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<td>soft, hydrophobic, non silicone</td>
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<tr>
<td>DURON SL 2221</td>
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<td>x</td>
<td>hydrophobic, soft silicone free</td>
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<td>x</td>
<td>low foaming, FDA and EU 10/2011*</td>
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<td>DURON SL 3204</td>
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<td>DURON SL 3214</td>
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<td>dust catching</td>
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<td>DURON SL 4035</td>
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* Ingredients included in regulations for indirect food contact according to FDA and EU 10/2011
## SPIN FINISHES FOR POLYESTER STAPLE FIBRES

<table>
<thead>
<tr>
<th>Fibres for nonwoven production</th>
<th>Fibres for yarn production</th>
<th>Filling fibres</th>
<th>Needle punched</th>
<th>Hygiene</th>
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<th>Shortcut fibres</th>
<th>Notes</th>
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<tr>
<td><strong>DURON 14</strong></td>
<td>n-liq</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td><strong>DURON 1105</strong></td>
<td>a-liq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>universal spin finish for all kinds of PES fibres</td>
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<td><strong>DURON 7024</strong></td>
<td>a-liq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>antistat</td>
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<td><strong>DURON ES 3151</strong></td>
<td>n-liq</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td><strong>DURON ES 3165</strong></td>
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<td>x</td>
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<td>x</td>
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<td><strong>DURON FF 1995</strong></td>
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<td>1-component self crosslinking fibre fill system</td>
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<td>3-component fibre fill system for enhanced softness and resilience</td>
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<td><strong>DURON X 730</strong></td>
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<td>x</td>
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<td><strong>DURON K 4054</strong></td>
<td>a-liq</td>
<td>x</td>
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<td>thermally stable antistat designed for combination with fibre fill finishes</td>
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<td><strong>DURON PP 3</strong></td>
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<td></td>
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<td>moisture management</td>
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*  ingredients included in regulations for indirect food contact according to FDA
** ingredients included in regulations for indirect food contact according to FDA and EU 10/2011
### SPIN FINISHES FOR POLYAMIDE STAPLE FIBRES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Lubricant</th>
<th>Antistat</th>
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<tbody>
<tr>
<td>DURON 14</td>
<td>n·liq</td>
<td>x</td>
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<td>standard lubricant for all types of PA staple fibres</td>
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<tr>
<td>DURON 1105</td>
<td>a·liq</td>
<td></td>
<td>x</td>
<td>textile handle</td>
</tr>
<tr>
<td>DURON 7024</td>
<td>a·liq</td>
<td></td>
<td>x</td>
<td>soft handle, suitable for stretchbreaking process</td>
</tr>
<tr>
<td>DURON AS 1711</td>
<td>n·liq</td>
<td></td>
<td></td>
<td>lubricant with antistatic properties</td>
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<tr>
<td>HANSA ASE 7620</td>
<td>n·liq</td>
<td></td>
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<td>final finish containing silicone for super soft fibres [coloured ranges]</td>
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<td>DURON K 2088</td>
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### SPIN FINISHES FOR SECONDARY SPINNING

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<thead>
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<th>Ionic character</th>
<th>Appearance</th>
<th>Top production</th>
<th>Worsted yarn spinning</th>
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<th>Woollen yarn spinning</th>
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<tr>
<td>DURON HK 1040</td>
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<td>x</td>
<td>x</td>
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<td>for all kinds of fibres in semi-worsted and woollen yarn spinning</td>
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<td>DURON KG 1710</td>
<td>n·liq</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>universal lubricant for fibre blends with high amount of synthetic fibres</td>
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<td>DURON KG 2450</td>
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<td>carding finish</td>
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<td>DURON KG 3010</td>
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<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>universal lubricant for wool</td>
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<td>DURON P 1</td>
<td>n·liq</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>reducing yarn/solid friction</td>
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<tr>
<td>DURON SG 2420</td>
<td>n·liq</td>
<td></td>
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<td></td>
<td>x</td>
<td>mineral oil-free lubricant</td>
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<td>DURON VWS</td>
<td>n·liq</td>
<td></td>
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<td>silicone softener for aftertreatment of “Chlorine-Hercosett” treated wools</td>
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### NEEDLE-PUNCHED NONWOVEN FINISHES

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<tr>
<td>DURON NV 2</td>
<td>n·liq</td>
<td>gives high fibre/fibre cohesion for good fibre bonding, even on straight coarse fibres</td>
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<tr>
<td>DURON NV 7</td>
<td>n·liq</td>
<td>low fogging for the automotive sector</td>
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<tr>
<td>DURON NV 12</td>
<td>n·liq</td>
<td>universal finish for needle-punched nonwovens for all kinds of fibres (synthetic fibres, natural fibres, ceramic fibres)</td>
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### ADDITIVES FOR SECONDARY SPINNING

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<tr>
<td></td>
<td>a-liq</td>
<td>antistatic agent for synthetic fibres with decreasing friction capacity</td>
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<tr>
<td>DURON 7024</td>
<td>n-liq</td>
<td>highly efficient antistatic agent for processing all fibres and blends in conventional and rotor spinning – increases cohesion</td>
</tr>
<tr>
<td>DURON SI</td>
<td>n-liq</td>
<td>component to increase the fibre/fibre cohesion in conventional and rotor spinning</td>
</tr>
</tbody>
</table>

### CONING AND TEXTURIZING OILS, WARP WAXES

<table>
<thead>
<tr>
<th>Ionic character</th>
<th>Appearance</th>
<th>Coning oil</th>
<th>Warp wax</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DURON KETTWACHS 109</td>
<td>n-liq</td>
<td>x</td>
<td>x</td>
<td>watersoluble, readily biodegradable</td>
</tr>
<tr>
<td>DURON TX 2080</td>
<td>a-liq</td>
<td>x</td>
<td></td>
<td>esteroil based, biodegradable, low emission</td>
</tr>
<tr>
<td>DURON TX 4015</td>
<td>a-liq</td>
<td>x</td>
<td></td>
<td>classical, mineral oil based</td>
</tr>
<tr>
<td>DURON TX 4073</td>
<td>a-liq</td>
<td>x</td>
<td></td>
<td>classical, mineral oil based, superior antisplash properties</td>
</tr>
<tr>
<td><strong>PRODUCT INDEX</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DURON 14 (n · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination of fatty acid polyglycol esters with anticorrosion-additives. Spin finish component for polyester and polyamide staple fibres. Increases the static fibre/fibre friction of polyester staple fibres and decreases the dynamic fibre/fibre and fibre/metal friction. Imparts polyamide staple fibres slightly higher values of fibre/fibre friction and average values of fibre/metal friction. The product is used in combination with phosphoric acid esters such as DURON 1105 and DURON 7024. Imparts a low climate sensitivity to the fibres in further processing and is suitable for fibres in ring and OE spinning. The application amount on cotton type is 0.14 % and 0.3 % on wool type.</td>
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</tr>
<tr>
<td><strong>DURON 1105 (a · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphoric acid ester mix Spin finish component for polyester staple fibres (C and W type) as well as tow. The product is applied as antistatic component together with a lubricant e.g. DURON 14. The application amount is on cotton type max. 0.14 %, and max. 0.3 % on wool type.</td>
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<tr>
<td><strong>DURON 7024 (a · liq)</strong></td>
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</tr>
<tr>
<td>Aqueous preparation of neutralized primary alkyl phosphate Antistatic component and finish for synthetic staple fibres as well as PP-spunbond. DURON 7024 is applied as antistatic component together with a lubricant, e.g. DURON 14. The application amount is max. 0.16 % on cotton type, and max. 0.3 % on wool type. DURON 7024 is also applied in the field of PP-spunbond whenever certain antistatic properties are demanded for protective clothing.</td>
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<tr>
<td><strong>DURON AC (n · liq)</strong></td>
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<tr>
<td>Alkylbetain Highly efficient antistatic agent for processing all fibres and blends in conventional and rotor spinning. High antistatic efficiency mostly as additive for spin finishes. Decreases the fibre/metal friction and increases the fibre/fibre friction and is therefore highly suitable for rotor spinning and short staple range. 0.1 – 0.2 % as additive for spin finishes; application is done from aqueous dilution.</td>
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</tr>
<tr>
<td><strong>DURON AS 1711 (n · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination of fatty acid polyglycol ester and phosphoric acid ester Spin finish for polyamide staple fibres. The product imparts polyamide staple fibres slightly higher values in fibre/fibre friction and average values in fibre/metal friction. One component finish which contains an antistatic agent. The product is applied at the spinning chamber and the fibre line. Altogether the pick-up amounts to 0.2 – 0.7 % depending on the fibre titre.</td>
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</tr>
<tr>
<td><strong>DURON ES 3151 (n · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixture of selected fatty acid polyglycol ethers and esters Spin finish for polyester shortcut fibres. The product supports the cutting process. DURON ES 3151 has an extremely low tendency to foam and prevents the antistatic charge of the fibres during processing and particularly during packing. Fibres produced with DURON ES 3151 are spontaneously and evenly distributed in concrete. The product is based on FDA listed raw materials.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DURON ES 3165 (n · liq)</strong></td>
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</tr>
<tr>
<td>Preparation of non-ionic surfactants Spin finish for PES staple fibres. Exactly adjusted wetting and rewetting behaviour. Suitable for the production of hygienic nonwovens, particularly ADL fibres. It is applied in fibre production. The application amount is approx. 0.4 %. Ingredients included in regulations for indirect food contact according to FDA.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DURON ES 3176 (n · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatty acid polyglycol ester Spindraw and final spin finish for PES-staple fibre production. Spin finish for PES-fibres, that need high fibre cohesion for subsequent processing. The following application quantities are recommended: 0.6 – 0.8 % of active substance of DURON ES 3176.</td>
<td></td>
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</tr>
<tr>
<td><strong>DURON ES 3184 (n · liq)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solution of fatty acid polyglycol ester Spin finish component for PES staple fibres. The product is applied in combination with fibre fill finishes, changing the handle from soft to crunchy or applied on coarse carpet fibres.</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
**FIBRE AUXILIARIES**

**DURON ES 3188 (n · liq)**
Mixture of polyglycols and additives
Duron ES 3188 is applied in the production of staple fibres used for hydroentanglement. The total pick-up is 0.4 – 0.7%. In case of changing the finish a contamination with surfactant systems should be avoided.
Ingredients included in regulations for indirect food contact according to FDA and EU 10/2011.

**DURON FF 1995 (c · liq)**
Fatty acid condensation product
Silicone free fibre fill finish with no influence on flammability of fibres. Giving soft bulky fibres without heat treatment. Recommended opu: 0.5%.

**DURON FF 2084 (n · liq)**
Emulsion of aminofunctional siloxane
One component silicone softeners for PES fibre fill. Imparts the fibre softness and high bulkiness with very good resilience. Non-yellowing. Good wetting and spreading on the fibre. Application is done by means of an aqueous dilution by spraying or dipping. Between 0.4 – 0.6% are applied. Condensation for 5 – 15 min at 130 – 170°C to achieve permanent siliconisation.

**DURON FF 3185 (n · liq)**
Aminofunctional polysiloxane
Silicone finish for polyester fill fibres. The product can be applied by spraying or dipping. The product pick-up should be 0.4 – 0.5% (active substance) based on the fibre weight. To improve the very good resilience we recommend the additional application of DURON FF 3190 in combination with DURON FF 3185. For application in short curing conditions (e.g. 176°C/3.5 min) additional use of low yellowing crosslinker system DURON X 730 is recommended.

**DURON FF 3190 (a · liq)**
Polysiloxane
Component for silicone softener for fill fibres. The product can be applied by spraying or dipping. The total product pick-up should be 0.3 – 0.5% (active substance) based on the fibre weight. By the use of DURON FF 3190 it is possible to adjust the controversial dependency of soft handle and resilience. Therefore we would like to suggest using DURON FF 3190 in combination with an aminofunctional polysiloxane such as DURON FF 3185 which gives an excellent soft handle.

**DURON HK 1040 (n · liq)**
Combination of fatty acid ethoxylates and antistatic agents
Lubricant for all types of fibres in semi-worsted yarn and woolen yarn spinning. Imparts a uniform drafting which has a positive influence on the running properties and the yarn evenness in all processing steps. Application is normally done from an aqueous dilution by spraying. The application amount depends on the spinning and fibre type and is between 0.25 – 1.2%.

**DURON K 2088 (n · liq)**
Reactive silicone crosslinking agent
The product increases the softness and permanence of silicone softeners.

**DURON K 3168 (a · p)**
Mono/dialkyl phosphate
Low foaming antistat, suited for fibres used in hydroentanglement processes. Usually used in combination with low foaming lubricants. Recommended opu: 0.2 – 0.5%.

**DURON K 4054 (a · liq)**
Fatty acid polyglycol ester with antistatic agent
Especially developed antistat with enhanced thermal stability. Used in combination with any kind of fibre fill finishes. Recommended opu: 0.1 – 0.4%.

**DURON KETTWACHS 109 (n · liq)**
Aqueous solution of polyethylene glycols
Liquid warp wax for stable fibre yarns.
The product flattens the warp yarns and prevents singular fibres from sticking out by its film building properties. Missed threads during the weaving process are avoided, and in many cases sizes do not have to be applied. The application amount depends on the kind of fibre and is between 0.3 and 2%.

**DURON KG 2450 (n · liq)**
Oxethylated carboxylic acid
Carding finish for combing. Average fibre/fibre friction with low fibre/metal friction and thus good yield. The water retention is improved. Wool fats are not dissolved. Easily biodegradable. Application is either done pure or from an aqueous dilution. The application amount is between 0.2 – 0.4%.

**DURON KG 3010 (n · liq)**
Oxethylated carboxylic acids and antistatic agents
Synthetic lubricant for all kind of fibres in combing mills, worsted spinning mills and semi-worsted spinning mills. Uniform drafting effectuates good and balanced running properties in all processing steps. Application is done by means of aqueous dilution, the application amount is between 0.15 – 0.4% depending on the fibre material.

**DURON NV 2 (n · liq)**
Fatty acid ethylene oxide addition in combination with colloidal silicic acid
Synthetic finish for the production of needle punched nonwovens made of man-made fibres [flat fabric, cotton felts]. Imparts the fibres an average to high fibre/fibre friction and in this way very much improves the dimension stability. Good antistatic properties. Application is done from an aqueous dilution, the application amount is approx. 1%. DURON NV 2 is recommended on coarse fibres.

**DURON NV 7 (n · liq)**
Mixture of water-soluble ethoxylates with phosphoric acid esters
Needle-felt finish for the automotive sector. Special low-fogging needle-felt finish without odour. Guarantees trouble-free processing on the card and cross layer. The result is an intensive and fibre-protecting needling of the material. Application is done from an aqueous dilution made in the mixing line, the application amount is between 0.4 – 0.7%.
DURON NV 7 is also applied in combination with DURON 14 for the production of PES staple fibres, application automotive sector.
DURON NV 12 (n · liq)
Combination of fatty acid polyglycol esters and antistatic agents
Free from hydrocarbons. Synthetic finish for the production of needle-punched nonwovens made of man-made fibres. Guarantees a trouble-free processing on the card and cross layer. The result is an intensive and fibre protecting needling of the material. Effectively supports structure needling (loop-needles). Decreases the needle penetration force and in this way permits higher speeds of the sewing machine. Application is done from an aqueous dilution in the mixing unit; the application amount is between 0.3 – 0.5 %.

DURON OF 1547 (c · liq)
Compounds of fatty acid amines, fatty acid esters and functional silicone
Permanent hydrophilic spin finish for PP-spinbond. DURON OF 1547 stands out with excellent “Repeated Liquid Strike Through” values. It gives a soft handle to the PP material. The product is suitable for applications in the hygienic field. An oil pick-up of approx. 0.4 % is recommended. On request botanicals can be incorporated.

DURON OF 2230 (n · liq)
Polyglycolether, derivated
Spin Finish for PP-BCF and textured PP-CF-yarns. Due to good fibre protection suited for processing of low dpf yarns and Frieze, air-texturising also possible. Not supporting gasfading, no masterbatch solving. Thermally stable and by that applicable in any kind of heat set processes. Imparting good soft handle.

DURON OF 2236 (n · liq)
Polyglycolether, derivated

DURON OF 3174 (n · liq)
Polydimethylsiloxane
Spin Finish for continuous filaments from polypropylene. Imparts hydrophobic properties.

DURON OF 3201 (n · liq)
Mixture of polyglycolol ether and surfactants
Spin finish for PP-FDY, PP-BCF and PP-tapes. DURON OF 3201 shows excellent spreading behaviour and thus uniform covering of the polypropylene surface. This is one important point for a trouble-free production.

DURON OF 3206 (n · liq)
Fatty acid polyglycol ester
Spin finish for polypropylene tapes. DURON OF 3206 was designed to apply in neat form with special rheological properties to avoid splashing off.

DURON OF 3217 (n · liq)
Polyglycolether, derivated

DURON OF 3225 (n · liq)
Polyether derivatives
PP-BCF spin finish imparting outstanding softness to carpet yarns. Excellent fibre protection, not supporting gasfading or masterbatch solving.

DURON OF 4012 (n · liq)
Finish of fatty acid esters
Permanent hydrophilic spin finish for PP-spinbond. Permanent hydrophilic finish to 100 % silicone-free for nonwovens which stands out due to its very good “Repeated Liquid Strike Through” values. The product is suitable for applications in the field of hygienic articles. The recommended application amount is between 0.4 – 0.5 %. On request botanicals can be incorporated.

DURON OF 3151 (n · liq)
Combination of fatty acid polyglycol ethers and esters
Spin finish for PP short cut fibres. The product supports the particularly difficult cutting process for short cut fibres. DURON OS 3151 has an extremely low tendency to foam and prevents the static charging during the processing, and especially during packaging. Fibres produced with DURON OS 3151 show a spontaneous and even distribution in concrete. The product is based on FDA listed raw materials and therefore it is suitable for the production of short cut fibres with contact to food articles. Oil pick-up: 0.5 – 0.7 %.

DURON OS 3176 (n · liq)
Fatty acid polyglycol ester
Spin-draw finish and final spin finish for the PP staple fibre production. Provides a good cohesion, and gives an average fibre/fibre and fibre/metal friction. Due to selected raw materials DURON OS 3176 does not support gas fading. The total oil pick-up is 0.6 – 0.8 %.

DURON OS 3184 (n · liq)
Solution of fatty acid polyglycol ester
Suitable for the production of PP fibres particularly for carpet fibres. By application of DURON OS 3184 a strong crunchy handle is obtained on PP fibres. PP fibres generate thus a particularly high cohesion.
Recommended application quantity on the fibre: 0.5 – 0.7 %.

**DURON OS 3188 (n · liq)**
Mixture of polyglycols and additives
Spin finish for polypropylene staple fibres. The product is applied for the production of staple fibres for the hydroentanglement. The total oil pick-up is 0.4 – 0.7 %. In case of change of finish contamination with systems containing surfactants is to be avoided.

**DURON OS 4012 (n · liq)**
Preparation of fatty acid esters
Silicone-free, 100 % active matter, permanent hydrophilic spin finish for PP staple fibres which are used in the hygienic field. DURON OS 4012 is adjusted to a skin friendly pH of 5.5. Recommended application amount: 0.4 %. On request botanicals can be incorporated.

**DURON OS 4022 (n · liq)**
Fatty acid polyglycol ester with antistatic agent
Spin-draw finish and final finish for PP staple fibres. Provides a good yarn cohesion and an excellent antistatic effect. The produced PP fibres are suitable for the OE process and the ring spinning process. An oil pick-up of 0.6 – 0.8 % is recommended.

**DURON P 1 (n · liq)**
Paraffin dispersion
Finely dispersed paraffin dispersion for an application in the textile and glass filament industry. Reduces the yarn/metal and yarn/yarn friction and replaces the hard waxing. Increases the flatness of the glass filament size and gives a soft handle on glass filaments. Oil pick-up: 1.3 – 2.5 % in dependence on the yarn mixture.

**DURON PP 3 (n · liq)**
Combination of non-ionic and amphoteric surfactants
Spin finish for PES staple fibres. Exactly adjusted wetting and rewetting behaviour. Suitable for the production of hygienic nonwovens, particularly ADL fibres. It is applied in fibre production. The application amount is approx. 0.4 %.

**DURON SG 2420 (n · liq)**
Ethoxylated carboxylic acid
Woollen spinning lubricant, free from mineral oil. Medium fibre/fibre friction and low fibre/metal friction, thus a good yield. The product facilitates dyeing without a pre-wash and does not dissolve wool fat. DURON SG 2420 is applied out of an aqueous dilution in blending. The application quantity is between 0.5 and 2 %.

**DURON SI (n · liq)**
Inorganic silicic sol in combination with polyglycols
Component for increasing the fibre/fibre friction in conventional and rotor spinning. DURON SI is added to the spin lubricant. The application quantity depends on the substrate. Compared with pure silicic acid products, guides for fibre and thread are more wear resistant if DURON SI is used. The product facilitates higher spinning speeds due to a reduced yarn twisting and is particularly of interest to rotor spinning.

**DURON SL 2206 (c · liq)**
Fatty acid condensation product
Silicone free hydrophobic spin finish for PP-spunbond in technical applications to increase softness and drapeability. Recommended opu: 0.5 %.

**DURON SL 2221 (n · liq)**
Aqueous preparation of non-ionic fatty acid esters
Silicone free, hydrophobic spin finish for PP-spunbond imparting softness to PP-surface. Ingredients included in regulations for indirect food contact according to FDA and EU 10 / 2011. Recommended opu: 0.35 – 0.5 %.

**DURON SL 3188 (n · liq)**
Mixture of polyglycols and additives
Spin finish for PP-spunbond with enhanced requirements on low foam build up. Recommended opu: 0.3 – 0.5 %.

**DURON SL 3204 (n · liq)**
Aqueous emulsion of aminofunctional polysiloxanes
Silicone based hydrophobic spin finish for PP-spunbond in technical applications to increase softness. Recommended opu: 0.5 %.

**DURON SL 3211 (n · liq)**
Macroemulsion of alkylmodified aminosiloxane
Hydrophobic silicone based spin finish for PP-spunbond to achieve a smooth and soft surface. Suited for hygienic application. Recommended opu: 0.5 %.

**DURON SL 3214 (n · liq)**
Emulsion of paraffines
Spin finish for PP-spunbond with dust catching properties. Recommended opu: 0.5 % – 0.8 %.

**DURON SL 4035 (n · liq)**
Fatty acid polyglycol ester
Spin finish for PP-spunbond fabrics with hydrophilic properties. DURON SL 4035 can be applied by lick roller, by kiss roller, by foam etc. All raw materials applied for DURON SL 4035 are included in regulations for indirect food contact according to FDA. Recommended opu: 0.4 – 0.8 %. Recommended application quantities: spunbond fabrics 0.4 – 0.5 %.

**DURON SL 4049 (n · liq)**
Mixture of selected fatty acid polyglycol esters
Permanent hydrophilic spin finish for PP-spunbond. Excellent “Liquid Strike Through” values are going along with lowest wet back. Suited for hygienic application with recommended opu of 0.5 %. On request botanicals can be incorporated.

**DURON SL 4077 (a · liq)**
Fatty acid polyglycol ester with additives
Hydrophilic spin finish for PP-Spunbond material with enhanced requirements in respect of rapid wetting properties. Recommended opu: 0.4 – 0.8 %.

**DURON TX 2080 (a · liq)**
Special oils combined with emulsifiers
Preparation for filaments and coning oil for textured filaments. DURON TX 2080 is particularly designed for a perfect runability on filaments of all polymer types. Could be used as a coning oil if low emulsion values are required. The oil pick-up is according to the application field.

**DURON TX 4015 (a · liq)**
Preparation of mineral oil and non-ionic surfactants
Coning and spinning oil easily to be washed off for processing of filament and staple fibre yarns of synthetic and natural fibres in spinning, twisting and texturising. DURON TX 4015 is applied in neat form. Pick-up: 0.5 – 2 %.
**DURON TX 4073 (a · liq)**
Preparation of mineral oil and non-ionic surfactants
Alternative to Duron TX 4015 in case of enhanced requirements in respect of anti-splash properties. Recommended opu: 0.5 – 2%.

**DURON VWS (n · liq)**
Aqueous emulsion of an aminofunctional polysiloxane
Softener based on silicone for the finishing of wool tops. Very soft and smooth handle, improvement of the "antipilling", "felting" and "non felting" effect, not yellowing. Particularly designed for wool aftertreatment subsequent to a Basolan procedure.

**DURON X 730 (n · liq)**
Reactive silicone crosslinking agent
Crosslinking agent for silicone softeners. Depending on the individual handle we recommend 1 – 5% active substance of DURON X 730 based on the quantity of applied silicone softener such as DURON FF 3185 and DURON FF 3190. To obtain a durable siliconisation a higher temperature for condensation is needed (e.g. 170 °C / 5 min).

**HANSA ASE 7620 (n · liq)**
Silicone emulsion
Super soft finish for PA staple fibre. HANSA ASE 7620 is applied in combination with the crosslinking agent DURON K 2088 in a ratio of 9:1 (tel quel). The product is applied either in addition to the spin finish on the fibre line or by dipping. An oil pick-up of 0.4% referring to the fibre weight is recommended.
## COATINGS

### FLAME RETARDANT PASTE COATINGS

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Film properties</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APYROL LV 21</strong></td>
<td>filled compound based on acrylate with flame retardancy based on Br/Sb</td>
<td>smooth, white paste</td>
<td>medium hard</td>
</tr>
<tr>
<td><strong>APYROL P-ECO</strong></td>
<td>filled, flame retardant compound based on acrylate, halogen free</td>
<td>smooth, white paste</td>
<td>medium hard</td>
</tr>
</tbody>
</table>

### FLAME RETARDANT FOAM COATINGS

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Film properties</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APYROL BO-H</strong></td>
<td>filled polymer dispersion with halogen donors and antimony oxide</td>
<td>white, low viscous paste</td>
<td>hard</td>
</tr>
<tr>
<td><strong>APYROL GBO-E</strong></td>
<td>filled polymer dispersion with halogen donors and antimony oxide</td>
<td>white, low viscous paste</td>
<td>medium</td>
</tr>
<tr>
<td><strong>APYROL BO ECO PLUS</strong></td>
<td>filled polymer dispersion with halogen free FR-component</td>
<td>white, low viscous paste</td>
<td>medium</td>
</tr>
<tr>
<td><strong>APYROL PREM E</strong></td>
<td>filled polymer dispersion with organic halogen donors and antimony oxide</td>
<td>white, low viscous paste</td>
<td>soft</td>
</tr>
</tbody>
</table>
## FLAME RETARDANT FINISH BY PADDING

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Durability</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>APYROL BKW</td>
<td>phosphorous and sulphur compounds, clear, colourless liquid</td>
<td>no</td>
<td>for Co articles, certified for DIN 4102/B1 (by German Institute for Construction Technic), not permanent</td>
</tr>
<tr>
<td>APYROL NCE CONC.</td>
<td>organic N-P compound, clear, colourless liquid</td>
<td>no</td>
<td>allround product for different kind of substrates, not permanent</td>
</tr>
<tr>
<td>APYROL PES 80</td>
<td>alkyl phosphonate, clear liquid</td>
<td>yes</td>
<td>for PES articles, permanent</td>
</tr>
</tbody>
</table>

## FLAME RETARDANTS FOR THE EXHAUST PROCESS

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Durability</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>APYROL ZAC</td>
<td>zirconium acetate solution, clear liquid</td>
<td>yes</td>
<td>for wool – “low smoke” demand</td>
</tr>
<tr>
<td>APYROL ZFK</td>
<td>potassium-hexafluorozirconate, white powder</td>
<td>yes</td>
<td>for wool – standard product</td>
</tr>
</tbody>
</table>

## AUXILIARIES FOR FLAME RETARDANT COATING

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>APYROL FR CONC. E</td>
<td>aqueous dispersion of antimony and halogen donors, white, low viscosity paste</td>
<td>binder-free compound based on Sb/halogen</td>
</tr>
<tr>
<td>APYROL PP 41</td>
<td>ammonium polyphosphate, fine, white powder</td>
<td>binder-free, Sb-free/halogen-free powder</td>
</tr>
</tbody>
</table>
## DISPERIONS/BINDERS

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Film properties</th>
<th>Characterisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT A 19</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT A 22</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT A 23</td>
<td>styrene acrylate</td>
<td>white, dispersion</td>
<td>medium hard</td>
</tr>
<tr>
<td>TUBICOAT A 36</td>
<td>styrene acrylate</td>
<td>white dispersion</td>
<td>very soft</td>
</tr>
<tr>
<td>TUBICOAT A 41</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT AC 506</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT AC 541 FF</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>hard</td>
</tr>
<tr>
<td>TUBICOAT B 45X</td>
<td>latex</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT CH 5078 FF</td>
<td>polyacrylate</td>
<td>white dispersion</td>
<td>very soft</td>
</tr>
<tr>
<td>TUBICOAT E 4</td>
<td>ethylene vinyl acetate</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT PU 60</td>
<td>polyurethane</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT PU-UV</td>
<td>polyurethane</td>
<td>white dispersion</td>
<td>hard</td>
</tr>
<tr>
<td>TUBICOAT PU-VH NEU</td>
<td>polyurethane</td>
<td>white dispersion</td>
<td>very hard</td>
</tr>
<tr>
<td>TUBICOAT PUH-BI</td>
<td>polyurethane</td>
<td>white dispersion</td>
<td>hard</td>
</tr>
<tr>
<td>TUBICOAT PUS</td>
<td>polyurethane</td>
<td>white dispersion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT SC FF</td>
<td>styrene</td>
<td>white dispersion</td>
<td>very hard</td>
</tr>
<tr>
<td>TUBICOAT SI 55</td>
<td>polysiloxane with functional groups</td>
<td>white emulsion</td>
<td>soft</td>
</tr>
<tr>
<td>TUBICOAT VA 10</td>
<td>vinyl acetate</td>
<td>white dispersion</td>
<td>hard</td>
</tr>
</tbody>
</table>
## Thickeners

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT HEC</td>
<td>cellulose ether yellowish powder</td>
<td>natural thickener, stable to electrolytes</td>
</tr>
<tr>
<td>TUBICOAT VERDICKER ASD</td>
<td>acrylic polymer white, low viscous liquid</td>
<td>synthetic thickener, has to be neutralised</td>
</tr>
<tr>
<td>TUBICOAT VERDICKER LP</td>
<td>polyacrylic acid yellowish, slightly viscous liquid</td>
<td>pre-neutralised synthetic universal thickener</td>
</tr>
<tr>
<td>TUBICOAT VERDICKER PRA</td>
<td>acrylate copolymer white, low viscous liquid</td>
<td>rheological additive to reduce the penetration of the coating paste into the fabric</td>
</tr>
<tr>
<td>TUBICOAT VERDICKER PUR 41</td>
<td>associative PU-thickener clear to slightly cloudy liquid</td>
<td>rheological thickener for coating pastes, also for lower pH-values</td>
</tr>
</tbody>
</table>

## Foaming Auxiliaries

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT AOS</td>
<td>amine oxide clear liquid</td>
<td>universal foaming agent, also for FC foam finishing</td>
</tr>
<tr>
<td>TUBICOAT BOS</td>
<td>mixture of special foamers and stabilizing agents whitish liquid</td>
<td>foaming component for producing stable foam coatings</td>
</tr>
<tr>
<td>TUBICOAT SHM</td>
<td>ammonia stearate glossy, viscous paste</td>
<td>stabiliser for stable foams</td>
</tr>
<tr>
<td>TUBICOAT STABILISATOR RP</td>
<td>alkyl sulphosuccinamide yellowish, soft paste</td>
<td>stabiliser to improve the stable foam quality</td>
</tr>
</tbody>
</table>

## Antifoams

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT ENTSCHÄUMER BSN</td>
<td>silicone based compound white emulsion</td>
<td>antifoam for coating pastes with high effectiveness</td>
</tr>
<tr>
<td>TUBICOAT ENTSCHÄUMER N 20</td>
<td>mineral oil yellowish liquid</td>
<td>antifoam for coating pastes</td>
</tr>
</tbody>
</table>
### CROSSLINKING AGENTS/FIXATIVES

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT FIX CDI</td>
<td>carbodiimide, liquid</td>
<td>crosslinker based on carbodiimide</td>
</tr>
<tr>
<td>TUBICOAT FIX ICB CONC.</td>
<td>isocyanate, colourless liquid</td>
<td>unblocked isocyanate, for heat-sensitive substrates</td>
</tr>
<tr>
<td>TUBICOAT FIXIERER FA</td>
<td>melamine resin derivative, clear, colourless liquid</td>
<td>melamine resin containing low amount of formaldehyde for crosslinking of coating products, standard fixing agent for coating pastes</td>
</tr>
<tr>
<td>TUBICOAT FIX H26</td>
<td>isocyanate, low viscous white liquid</td>
<td>blocked isocyanate, free from butanoxime, non-ionic, suitable for coating products, resin and FC finishes</td>
</tr>
<tr>
<td>TUBICOAT FIXIERER HT</td>
<td>melamine resin, clear, colourless liquid</td>
<td>melamine resin for crosslinking of coating products</td>
</tr>
</tbody>
</table>

### COMPOUNDS FOR PASTE COATING

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT ELH</td>
<td>compound based on polyurethane, black, medium viscous paste</td>
<td>paste for producing highly conductive coatings</td>
</tr>
<tr>
<td>TUBICOAT HWS-1</td>
<td>compound based on acrylate, white, medium viscous paste</td>
<td>coating for high watercolumn</td>
</tr>
<tr>
<td>TUBICOAT KL-TOP F</td>
<td>compound based on polyurethane, white paste</td>
<td>transparent topcoat for solvent-free imitation leather coatings</td>
</tr>
<tr>
<td>TUBICOAT MEA</td>
<td>compound based on polyurethane, white, high viscous paste</td>
<td>coating protecting from liquid metal splashes</td>
</tr>
<tr>
<td>TUBICOAT NTC-SG</td>
<td>compound based on acrylate, white, medium viscous paste</td>
<td>topcoat for 2-layer tablecloth coating</td>
</tr>
<tr>
<td>TUBICOAT PERL PU SOFT</td>
<td>compound based on polyurethane, smooth, iridescent paste</td>
<td>soft pearlescent compound for fashionable effects</td>
</tr>
<tr>
<td>TUBICOAT PERL VC CONC.</td>
<td>compound based on polyurethane, smooth, iridescent paste</td>
<td>pleatable pearlescent compound</td>
</tr>
<tr>
<td>TUBICOAT PUL</td>
<td>compound based on polyurethane, white, high viscous paste</td>
<td>three-dimensional dot coating with good abrasion fastness, for technical applications</td>
</tr>
<tr>
<td>TUBICOAT TCT</td>
<td>compound based on polyurethane, white, viscous paste</td>
<td>transparent topcoat coating for stable foams or pastes</td>
</tr>
<tr>
<td>TUBICOAT WLI</td>
<td>compound based on acrylate, white, smooth paste</td>
<td>compound to achieve a “peach skin” effect or suede-like handle</td>
</tr>
</tbody>
</table>
## COMPOUNDS FOR FOAM COATING

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT BO-UR</td>
<td>filled synthetic dispersion</td>
<td>medium hard, good value blackout coating with cold flexibility</td>
</tr>
<tr>
<td>TUBICOAT BO-W</td>
<td>filled synthetic dispersion</td>
<td>soft blackout coating, most of all for curtains</td>
</tr>
<tr>
<td>TUBICOAT KLS-M</td>
<td>aqueous synthetic dispersion based on polyurethane</td>
<td>stable foam compound for producing an embossable, solvent-free imitation of leather coating</td>
</tr>
<tr>
<td>TUBICOAT MP-W</td>
<td>aqueous synthetic dispersion based on polyurethane</td>
<td>compound for functional, stable foam coating, for technical applications</td>
</tr>
<tr>
<td>TUBICOAT MP-D</td>
<td>aqueous synthetic dispersion</td>
<td>good value compound for a functional, stable foam coating</td>
</tr>
</tbody>
</table>

## LSR COATINGS

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBCOSIL HAB 4-1 A AND B</td>
<td>2-component silicone elastomer</td>
<td>soft, high elastic coating with very good abrasion resistance</td>
</tr>
<tr>
<td>TUBCOSIL HAB 5-1 A AND B</td>
<td>2-component silicone elastomer</td>
<td>medium hard, high elastic coating with very good abrasion resistance and high tear resistance</td>
</tr>
<tr>
<td>TUBCOSIL HAB 5 FR A AND B</td>
<td>flameretardant 2-component silicone elastomer</td>
<td>medium hard, high elastic coating with very good abrasion resistance and high tear resistance</td>
</tr>
</tbody>
</table>

## OTHER AUXILIARIES FOR COATING

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBICOAT EMULGATOR HF</td>
<td>ethoxyl adduct</td>
<td>standard emulsifier to improve the distribution of pigments</td>
</tr>
<tr>
<td>TUBICOAT HOP-S</td>
<td>modified polysiloxane</td>
<td>auxiliary to optimise adhesion of aqueous coatings on synthetic substrates or substrates which are difficult to wet</td>
</tr>
<tr>
<td>TUBICOAT MOP NEU</td>
<td>compound based on acrylate</td>
<td>compound in combination with vector protection as a one sided application with high wash durability</td>
</tr>
<tr>
<td>TUBICOAT WBV</td>
<td>glycol mix</td>
<td>agent preventing roller deposits</td>
</tr>
<tr>
<td>TUBICOAT WEISS EU</td>
<td>suspension based on titanium dioxide</td>
<td>suspension for white pigmentation of coating pastes or stable foams</td>
</tr>
</tbody>
</table>
## WATER REPELLENCY/OIL REPELLENCY

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUBIGUARD® 10-F</td>
<td>fluorocarbon dispersion beige, low viscous liquid</td>
<td>room temperature fluorocarbon based on C6 chemistry, particularly suitable for temperature sensitive articles</td>
</tr>
<tr>
<td>TUBIGUARD® 30-F</td>
<td>fluorocarbon dispersion beige, low viscous liquid</td>
<td>fluorocarbon product, due to it’s non-ionic character it can be combined with most auxiliaries e.g. binders, flame retardant properties are barely influenced</td>
</tr>
<tr>
<td>TUBIGUARD® 86-F</td>
<td>fluorocarbon dispersion beige, low viscous liquid</td>
<td>fluorocarbon product, especially suitable for protective clothing and for the filtration range</td>
</tr>
<tr>
<td>TUBIGUARD® 90-F</td>
<td>fluorocarbon dispersion beige, low viscous liquid</td>
<td>fluorocarbon resin especially for cellulosic fibres and their blends</td>
</tr>
<tr>
<td>TUBIGUARD® LD-F</td>
<td>fluorocarbon dispersion beige, low viscous liquid</td>
<td>good value fluorocarbon product, especially for the filter range and synthetic fibres, e.g. PES, PP</td>
</tr>
<tr>
<td>TUBIGUARD® PC 3-F</td>
<td>compound based on FC white paste</td>
<td>FC containing paste for water- and oil repellency effect on one side for technical protective wear</td>
</tr>
</tbody>
</table>

## FLUORINE FREE WATER REPELLENCY

<table>
<thead>
<tr>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOPERL 4</td>
<td>functionalized polymers and waxes white, low viscous liquid</td>
<td>fluorine-free product for washable hydrophobic treatment of outdoor articles</td>
</tr>
<tr>
<td>ECOPERL CC</td>
<td>functionalized polymers and waxes white, high viscous paste</td>
<td>fluorine-free pastecoating for one sided hydrophobic effects</td>
</tr>
<tr>
<td>ECOPERL HC</td>
<td>modified polysiloxane clear to slightly cloudy liquid</td>
<td>fluorine-free hydrophobic treatment with dry-cleaning durability</td>
</tr>
</tbody>
</table>
## FILMS/MEMBRANES/LAMINATION

<table>
<thead>
<tr>
<th></th>
<th>Chemical base</th>
<th>Appearance</th>
<th>Application fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAMETHAN ADH-1</td>
<td>compound based on dispersions</td>
<td>white, low viscous paste</td>
<td>foam adhesive for dry lamination with breathable films or for bonding two fabrics</td>
</tr>
<tr>
<td>LAMETHAN ADH-L</td>
<td>compound based on a dispersion</td>
<td>whitish paste</td>
<td>paste adhesive for wet laminations</td>
</tr>
<tr>
<td>LAMETHAN LB 15-T / LB 25</td>
<td>hydrophilic polyurethane film</td>
<td>matt, transparent</td>
<td>breathable, hydrophilic film, with a thickness of 15 µm resp. 25 µm, application for protective and working clothes, leisure and sportswear, also available in white optic</td>
</tr>
<tr>
<td>LAMETHAN TAPE DE 80</td>
<td>polyester urethane</td>
<td>matt, transparent</td>
<td>2-layer PU tape for seam sealing, width 22 mm, thickness 80 µm, roller dimension 250 running metres, washdurability up to 40 °C</td>
</tr>
<tr>
<td>LAMETHAN VL H920 O BR 160</td>
<td>PES lining with polyurethane film</td>
<td>oliv</td>
<td>prelaminate for the production of a three layer laminate by foam lamination. Application field: Protective and workwear</td>
</tr>
<tr>
<td>TUBICOAT ASK</td>
<td>acrylic acid ester copolymer</td>
<td>white, medium viscosity dispersion</td>
<td>sticky dispersion as additive to foam or paste adhesives to increase adhesion</td>
</tr>
</tbody>
</table>
APYROL BKW
Mixture of special phosphorous and sulphur compounds. Flame retardant for natural and regenerated cellulose fibres as well as for wool and its blends. For textiles made of cellulose fibres APYROL BKW has the test mark PA-III 1.37 of the “Institut für Bautechnik” (Institute for construction technique).

APYROL BO-ECO PLUS
Halogen-free, foamable compound for producing flame retardant black-outs (3-layer) or light-out systems (2-layer). Suitable for all knife systems which permit a defined add-on and layer thickness. Provided the base material and application amount are suitable, articles coated with APYROL BO-ECO PLUS can comply with the requirements of DIN 4102/B1.

APYROL FR CONC. E
Binder-free blend based on antimony/halogen added to different binder systems in order to achieve flame retardant properties.

APYROL GBO E/APYROL BO-H
Flame retardant, foamable compound for producing black-outs (3-layer) or light-out systems (2-layer). Suitable for all knife systems which permit a defined add-on and layer thickness. Provided the base material and application amount are suitable, articles coated with APYROL GBO E or APYROL BO-H can comply with the requirements of DIN 4102/B1.

APYROL LV 21
Flame retardant paste coating for light protection articles. APYROL LV 21 is offered for the coating of roller blinds, vertical blinds, as well as stiffening backcoating for black-outs. On suitable basic materials and with a sufficient application quantity articles coated with APYROL LV 21 can comply with the requirements of DIN 4102/B1.

APYROL NCE CONC.
Product free from halogen and antimony for the flame retardant finishing of cellulosic fibres. Padding application. The necessary product add-on depends on the fabric weight, fibre composition, fabric structure and flame retardant standard to be met.

APYROL P-ECO
APYROL P-ECO is a flame retardant halogen-free coating paste for producing roller blinds and vertical blinds. APYROL P-ECO can also be coated as back coating for black-outs.

APYROL PES 80
Alkyl phosphonate Permanent flame retardant for 100% polyester for padding application.

APYROL PP 41
Binder-free mixture based on ammonium polyphosphate which can be added to different binder systems in order to achieve flame retardant properties.

APYROL PREM E
Coatings with APYROL PREM E are applied for flame-retardant upholstery backcoatings. They are fast to soaking and with a sufficient add-on they comply with the requirements of BS 5852, part 1. Fabrics coated with APYROL PREM E stand out for their soft fabric handle.

APYROL ZAC/APYROL ZFK
Flame retardant finish of wool which is fast to delicate washing and dry cleaning. The products can be exclusively applied by the exhaust method.

ECOPERL 4
ECOPERL 4 is a fluorine-free hydrophobic agent which gives a wash durable finish to all fibre types. ECOPERL 4 is mainly suited for outdoor and sports clothing.

ECOPERL CC
Fluorocarbon-free paste coating for a one-sided hydrophobic finishing of textiles. With sufficient add-on and good crosslinking ECOPERL CC gives good wash durability. The product can be applied by knife-over-air or suitable screens.

ECOPERL HC
ECOPERL HC is a fluorine-free hydrophobic agent which is suited for various fibre types. ECOPERL HC produces finishes which are durable to dry cleaning.

LAMETHAN ADH-1
Foamable adhesive excellently suitable as dried stable foam for the film lamination with LAMETHAN membranes. Film
Laminations with suitable basic fabrics and LAMETHAN LB 15-T or LB 25 give a very soft handle, good durability to washing and high water vapour permeabilities.

**LAMETHAN ADH-L**
Paste adhesive applied for the wet lamination. LAMETHAN ADH-L can be applied by screen or knife-over-air.

**LAMETHAN LB 15-T / LAMETHAN LB 25**
Transparent hydrophilic polyurethane membrane with a high water vapour permeability to produce breathable film laminates.

**LAMETHAN TAPE DE 80**
2-layer PU tape for seam sealing. Width 22 mm, thickness 80 µm, roller dimension 250 running metres, washdurability up to 40 °C.

**LAMETHAN VL H920 O BR 160**
Prelaminate consisting of a hydrophilic PU membrane and a oliv PES lining. It is applied to produce three layer laminates. The base material is coated with a stable foam adhesive and then the prelaminate is laminated onto it. It is not necessary anymore to sew in any additional lining material.

**TUBCOSIL HAB SERIES**
Addition-crosslinking two component silicone elastomers (LSR) mixed at a ratio of 1:1 (components A and B). Depending on the product in use different demands can be met.

**TUBICOAT A SERIES**
Aqueous dispersions based on polyacrylates and styrene acrylates of different hardness degrees, flexibilities, solids contents and crosslinking properties.

**TUBICOAT AC 541 FF**
**TUBICOAT CH 5087 FF**
**TUBICOAT SC FF**
Formaldehyde-free, aqueous dispersions based on polycrylates and styrene of different hardness degrees, flexibilities, solids contents and crosslinking properties.

**TUBICOAT AOS**
TUBICOAT AOS is a very efficient foaming auxiliary. It stands out for the fine pores of the produced foams. TUBICOAT AOS can be combined with almost any auxiliary in question.

**TUBICOAT ASK**
Sticky dispersion based on acrylate as additive to foam and paste adhesives to increase the adhesions.

**TUBICOAT B 45X**
Aqueous, thermally self-crosslinking, soft dispersion based on acrylonitrile butadiene which is durable to dry cleaning.

**TUBICOAT BO-UR / BO-W**
TUBICOAT BO-UR and TUBICOAT BO-W are foamable compounds for producing black-outs (3-layer) or light-out systems (2-layer). Suitable for all knife systems which permit a defined add-on and layer thickness. TUBICOAT BO-UR stands out for a good coldflexibility. TUBICOAT BO-W provides a slightly softer handle and often is used for the coating of curtains.

**TUBICOAT BOS**
TUBICOAT BOS is a combination of foaming auxiliaries and stabilizing agents. It serves as foam component for black-out recipes, but can also be added to other binder systems.

**TUBICOAT B 4**
TUBICOAT B 4 is based on ethylene vinyl acetate and forms a soft, transparent, slightly sticky and flexible film which has a good washdurability if being crosslinked.

**TUBICOAT ELH**
TUBICOAT ELH is a ready-to-use product for producing electrically conductive coatings. It is applied as a paste coating with suitable knife systems. The application amount is decisive for the conductivity.

**TUBICOAT EMULGATOR HF**
TUBICOAT EMULGATOR HF clearly increases the fine distribution of pigments. It has a good dispersing capacity for solids, liquids and water-miscible particles.

**TUBICOAT ENTSCHÄUMER BSN / N 20**
Silicone or mineral oil based antifoams. Both products are highly efficient antifoams for all coating recipes and synthetic dispersions. During preparation they already reliably prevent foam generation. The products are highly compatible with other common auxiliaries.

**TUBICOAT FIX CDI**
Crosslinking agent based on carbodiimide which stands out for a good compatibility and a long pot life.

**TUBICOAT FIXIERER FA**
Melamine resin containing very small amount of formaldehyde to increase the crosslinking degree of various synthetic dispersions.

**TUBICOAT FIX H26**
Blocked, polyfunctional isocyanate clearly increasing the crosslinking degree of synthetic dispersions at curing temperatures as of 120 °C. The product is free from butanoxime. Due to its non-ionic character TUBICOAT FIX H26 is also suitable for FC finishes.

**TUBICOAT FIXIERER HT**
TUBICOAT FIXIERER HT is based on melamine resin and excellently suitable for increasing the crosslinking degree and the fastness level of most synthetic dispersions. The formaldehyde content of coatings with TUBICOAT FIXIERER HT is only slightly increased.

**TUBICOAT FIX ICB CONC.**
Formaldehyde-free, polyfunctional special crosslinking agent based on isocyanate. As TUBICOAT FIX ICB CONC. is unblocked, it is mostly applied if a good crosslinking at lower temperatures has to be achieved.

**TUBICOAT HEC**
Hydroxyethyl cellulose TUBICOAT HEC is applied whenever synthetic thickeners cannot be applied. TUBICOAT HEC has a high thickening capacity and balanced rheological properties. TUBICOAT HEC is also used as a stabilizing component in unstable foams.

**TUBICOAT HOP-S**
TUBICOAT HOP-S is an additional component applied to improve the adhesion of a coating on a synthetic substrate by increasing its wetting properties.
**TUBICOAT HWS-1**
Compound based on acrylate
TUBICOAT HWS-1 is a ready-to-use compound for technical applications and if a high water column is demanded.

**TUBICOAT KLS-M**
TUBICOAT KLS-M is a stable foam compound applied for producing solvent-free imitation of leather coatings for fashion. The coating can be embossed and offers a very soft and flexible handle due to its foam structure.

**TUBICOAT KL-TOP F**
TUBICOAT KL-TOP F is applied as topcoat for solvent-free imitation of leather coatings for fashion. The coating can be embossed and offers a very soft and flexible handle due to its foam structure.

**TUBICOAT MEA**
Paste for coating protective clothing. TUBICOAT MEA is applied on permanently FR finished cotton or aramid types. Clothings coated with TUBICOAT MEA protect persons from liquid metal splashes or flying sparks (such as e.g., during welding).

**TUBICOAT MOP NEU**
TUBICOAT MOP NEU is used in combination with BEMATIN PER 40 as vector protection coating with very good washdurability.

**TUBICOAT MP-W**
TUBICOAT MP-W is a stable foam compound, based on polyurethane for producing functional coatings. By selecting the right basic fabric very soft coatings with a high water vapour permeability and a high water pressure resistance can be achieved.

**TUBICOAT MP-D**
TUBICOAT MP-D is a good value stable foam compound for producing breathable coatings. Aside from its application in technical fields, TUBICOAT MP-D is also applied as flexible and elastic coating in fashion trends.

**TUBICOAT NTC-SG**
Compound based on acrylate
TUBICOAT NTC-SG is applied as topcoat for tablecloth coatings.

**TUBICOAT PERL PU SOFT**
Smooth, iridescent paste with a high share of pearlescent pigments. TUBICOAT PERL PU SOFT gives a soft coating with a pearlescent optic and is mainly applied for fashion articles. The product is applied via knife-over-air or screen.

**TUBICOAT PERL VC CONC.**
Compound for producing stiff pearlescent coatings on vertical blinds and roller blinds which are applied by knife over air or by screen.

**TUBICOAT PU 60**
Polyurethane dispersion
TUBICOAT PU 60 forms a soft, film with high elasticity. Coatings based on TUBICOAT PU 60 stand out for their very good stability to hydrolysis and durability to dry cleaning and are applied in fashionable and functional articles.

**TUBICOAT PU-UV**
Polyurethane dispersion
TUBICOAT PU-UV forms a hard, dry and transparent film. Coatings based on TUBICOAT PU-UV are stable to UV-radiation and highly stable to hydrolysis.

**TUBICOAT PUH-BI**
Polyurethane dispersion
TUBICOAT PUH-BI forms a hard, dry and transparent film with an elastic and flexurally rigid handle. Coatings based on TUBICOAT PUH-BI are heatsealable.

**TUBICOAT PUL**
Compound based on polyurethane for producing three-dimensional dot coatings. TUBICOAT PUL is an anti-slip coating mainly used in the technical field.

**TUBICOAT VA 10**
Polyvinyl acetate dispersion
TUBICOAT VA 10 forms a hard, brittle film. TUBICOAT VA 10 has proven very well for stiffening textiles and as hard blending component together with e.g. acrylate dispersions.

**TUBICOAT VERDICKER ASD**
TUBICOAT VERDICKER ASD has a high thickening power with a distinct pseudoplastic character. Due to its low viscosity TUBICOAT VERDICKER ASD can be easily introduced into the recipes to be thickened. TUBICOAT VERDICKER ASD has the best thickening power at pH values > 8.

**TUBICOAT VERDICKER LP**
Synthetic pre-neutralised thickener for aqueous coating pastes. Coating effects with a distinct surface character are achieved. TUBICOAT VERDICKER LP has to be stirred in with an effective agitator, so that there are no lumps in the paste.

**TUBICOAT VERDICKER PRA**
Synthetic rheological additive for aqueous coating pastes which stands out for very long-flowing rheological properties.
TUBICOAT VERDICKER PUR 41
Associative PU thickener with a very good thickening effect on concentrated coating pastes. The product has already a thickening effect within the acid range as of approx. pH 4.

TUBICOAT WBV
TUBICOAT WBV is a product especially developed for the padding application. It reduces the deposit of pigments and binders on the padding rollers and supports the redispersibility.

TUBICOAT WEISS EU
Ultra-white, concentrated titanium dioxide suspension as additive for coating pastes and compounds. Easy to use in formulations which need to be foamed or used as a stable foam.

TUBICOAT WLI
Compound based on a soft acrylate. TUBICOAT WLI is a ready-for-use compound to produce coatings with a suede or peach skin effect.

TUBIGUARD® F-SERIES (c · liq)
Fluorocarbon dispersion
Fluorocarbons of the F-SERIES are based on C6 chemistry for achieving water repellent and oil repellent effects, which can be durable to washing and dry cleaning. Products of TUBIGUARD F-SERIES are suitable for synthetic and natural fibres and their blends. They are used in many different technical applications and can be applied by padding, by instable foamcoating or by spraying.