

TEXTILE AUXILIARIES

# ECO LOGIC!

Sustainable products and processes  
for the textile industry



ZSCHIMMER & SCHWARZ



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# CHEMISTRY TAILOR-MADE

Zschimmer & Schwarz is an internationally active company with headquarters in Lahnstein near Koblenz, Germany. The company has been family-owned since its foundation in Chemnitz, Germany, in 1894.

Our core business is the development, manufacture and delivery of tailor-made chemical auxiliaries for the leather, ceramic, textile and chemical fibre industries. Manufacturers of cleaning agents, personal care products, paints and coatings, lubricants and industrial applications all over the world trust in the company's chemical specialities as well.

The corporate group Zschimmer & Schwarz combines 28 companies in 16 countries on five continents, 20 of which have their own production facilities. Our customers can always rely on a uniform quality standard worldwide and equally on the high service orientation of our local experts. The Textile Auxiliaries Division offers process auxiliaries

that are synonymous with efficiency, effectiveness and quality in the textile industry. In addition to products for manufacturing yarns and fabrics, this division offers sustainable products for pre-treatment, dyeing and printing as well as finishing.

Our application technologists and sales service will be happy to advise you.

T +49 3724 67-256 | [textile@zschimmer-schwarz.com](mailto:textile@zschimmer-schwarz.com)








Zschimmer & Schwarz has been a bluesign® system partner since 2012. bluesign® is driving sustainable textile production to protect mankind, the environment and resources.

# ECO LOGIC!

With our innovative ECO LOGIC! line, we are offering customers products and process solutions that contribute to sustainable development, combining profitability and business success with environmental conservation.

ECO LOGIC! includes environmentally friendly products and process solutions that can be used throughout the textile finishing chain; ranging from conditioning agents for the production of textile fabrics to pre-treatment, dyeing and functional finishes.

 One highlight in our portfolio is the innovative ECOLUTION range that includes sustainable products based on natural raw materials.

With ECO LOGIC!, we are setting high standards for the active, sustainable protection of our environment! All products comply with the legal requirements and current environmental directives of the textile industry (e.g. ZDHC Gateway™, STANDARD 100 by OEKO-TEX®, bluesign®, GOTS, The BHive®, GRS). The use of natural raw materials and the ready biodegradability of ECO LOGIC! products are key aspects of our current product range as well as future products.

Our innovative ECO LOGIC! process technologies offer optimally tailored solutions for the textile user and lead to considerable savings in water and wastewater as well as lower energy consumption, reduced process times and carbon footprint in comparison to conventional processes.

Therefore, ECO LOGIC! processes not only enable the responsible stewardship of our environment, but also offer economic benefits, such as high production reliability, consistent product quality and enhanced competitiveness for our customers.

**BECAUSE ECO IS MORE THAN JUST A WORD FOR US.**

BLEACHING AGENTS



DETERGENTS



COLD WHITE



LUBRICANTS



ANTI-YELLOWING AGENTS



LT ANTI-YELLOWING



ECONDye



DYEING AUXILIARIES FOR NATURAL FIBRES



LT SOAPING



DYEING AUXILIARIES FOR SYNTHETIC FIBRES



LT DYEING



ZS CLEARING SYSTEM



RECYCLED POLYESTER – rPET



FINISHING



ECOPROOF



AIRMAX 2.0





# BLEACHING AGENTS

TISSOCYL COD is an ecological bleaching compound for the peroxide bleaching of yarns and knitted fabrics made from cotton and its blends. The product, based on natural raw materials, is phosphonate- and phosphate-free and has a very low COD and BOD content.

SINCAL EBC is an advanced ecological bleaching compound which is used for the discontinuous hydrogen peroxide bleach. Due to its well-balanced stabilising performance, SINCAL EBC leads to a very high whiteness and excellent re-wetting properties of the goods after bleaching. The sustainable product is mainly based on raw materials and has low COD and BOD values.

OPTAVON LTB is used as a peroxide activator for the bleaching of cotton in the low-temperature range (COLD WHITE); traditional peroxide stabilisers, which often contain phosphorous, are not required. The low bleaching temperature protects the cotton (no fibre damage) and improves crease resistance (fewer crease-prevention and softening agents required). Low-temperature bleaching with OPTAVON LTB leads to considerable energy and water savings as well as faster process times.

SETACID AB conc is used to neutralise alkaline finishing processes (scouring, bleaching). The product ensures the adjustment of mildly acidic to neutral pH values as required by the STANDARD 100 by OEKO-TEX®, for example. SETACID AB conc is a concentrated preparation, making it particularly resource-efficient.

## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	NATURAL RESOURCES	READILY BIODEGRADABLE
TISSOCYL COD	Level 3	conforms to classes I-IV	✓	✓	free	✓	clay*
SINCAL EBC	Level 3	conforms to classes I-IV	✓	✓	free	✓	clay*
OPTAVON LTB	Level 3	conforms to classes I-IV	✓		free		inorganic substances
SETACID AB conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓

\* The product contains an inorganic component which is non-biodegradable.



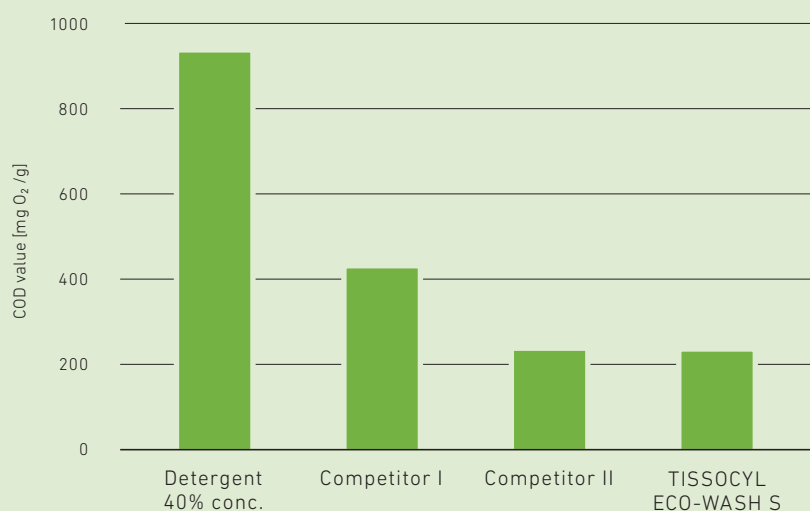




# DETERGENTS

**e** The sustainable detergent TISSOCYL ECO-WASH S is based on natural microparticles that are capable of absorbing oily substances. This enables the efficient cleaning of synthetic products. Compared to conventional detergents, the product is characterised by a considerably lower COD and BOD content, which helps protect our environment. TISSOCYL ECO-WASH S is part of our ECOLUTION range.

## ECOLOGICAL ASPECTS OF THE USE OF TISSOCYL ECO-WASH S



- ▶ Reduction of wastewater load due to low COD and BOD values:  
COD 262 mg O<sub>2</sub>/g product  
BOD 63 mg O<sub>2</sub>/g product
- ▶ Organic components are readily biodegradable
- ▶ Not dangerous to aquatic organisms (WHC 1)

TISSOCYL RC 9 is a special detergent for synthetic fibres (virgin and recycled polyester, polyamide) and fabric blends containing elastane; it achieves exceptional washing results even at low processing temperatures. When suitable qualities are present, it is possible to speed up the process by means of single-bath washing and dyeing (ECONDye) or washing and optical brightening (ECONBright), which significantly reduces the amount of water and energy consumed per batch.

The highly concentrated NEWALOL PFN wetting agent has a versatile range of uses in the textile chain, such as speeding up the wetting of spools or increasing pick-up during coating. It works within a wide pH range, is extremely low-foaming and readily biodegradable.

## EMULSIFYING PROPERTIES OF DIFFERENT DETERGENTS



Without detergent



TISSOCYL RC 9



Detergent



Detergent



Detergent

Emulsification test:  
5 g/l coloured silicone oil  
3 g/l detergent formulation  
1 g/l soda ash

Test conditions:  
Liquor temperature of 40 °C, assessment after 60 min at room temperature.

► TISSOCYL RC 9 DISPLAYS EXCELLENT SILICONE OIL EMULSIFYING PROPERTIES EVEN AT TEMPERATURES STARTING FROM 40 °C

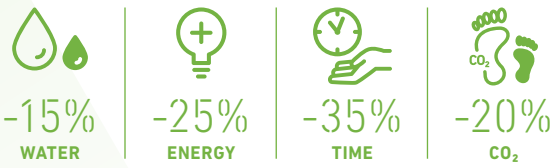
## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	APEO-FREE	NATURAL RESOURCES	READILY BIODEGRADABLE
TISSOCYL ECO-WASH S	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	clay*
TISSOCYL RC 9	Level 3	conforms to classes I-IV	✓	✓	free	✓		✓
NEWALOL PFN	Level 3	conforms to classes I-IV	✓	✓	free	✓		✓

\* The product contains an inorganic component which is non-biodegradable.



# COLD WHITE



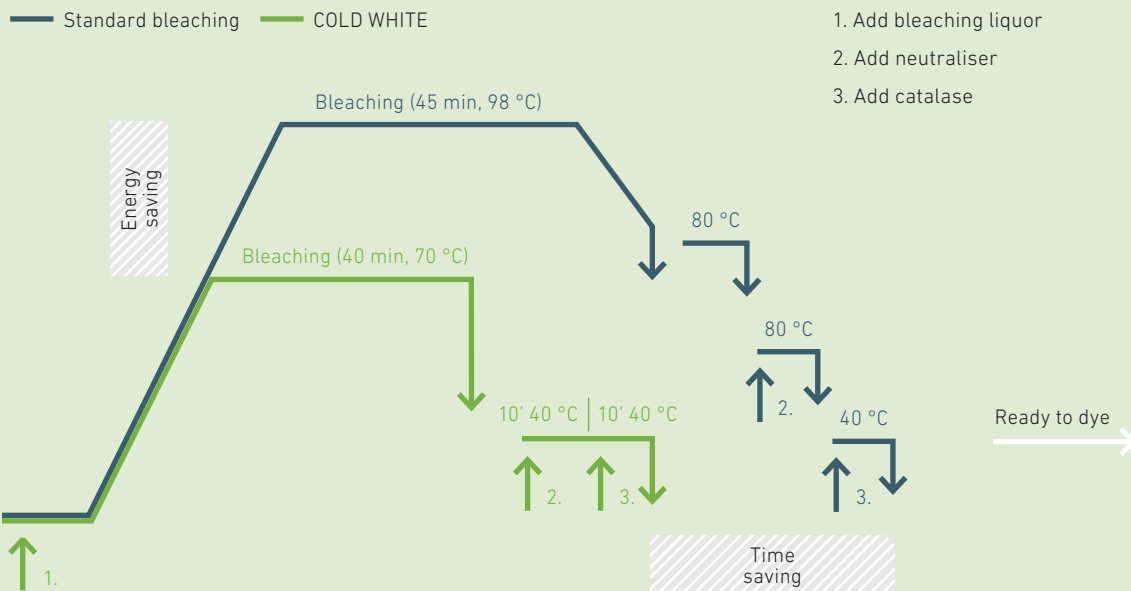
The sustainable bleaching technology enables safe, short and simple discontinuous bleaching processes at temperatures below 80 °C.

## BENEFITS

- ▶ Relaxed bleaching
- ▶ Provides savings in water and wastewater
- ▶ Significant reduction of COD in the wastewater load
- ▶ Less energy consumption
- ▶ Shorter process time

## COLD WHITE – THE SUSTAINABLE BLEACHING TECHNOLOGY

Standard bleaching vs. low-temperature ecological COLD WHITE bleaching





# LUBRICANTS

The universal warp waxing agent ENSIMOL KW conc enhances the processing properties of warps made from synthetic yarns and their blends with natural fibres to help reduce production costs. The product's low input quantities and excellent washability increase production efficiency while simultaneously protecting the environment.

The main area of application for KATAMIN BW 3.0 is the smoothing of cellulosic yarns in the exhaust process to enable significant time savings in further processing. KATAMIN BW 3.0 preserves the natural hydrophilic properties of cotton, which in turn conserves resources as smaller quantities of additional hydrophilic softeners are needed.

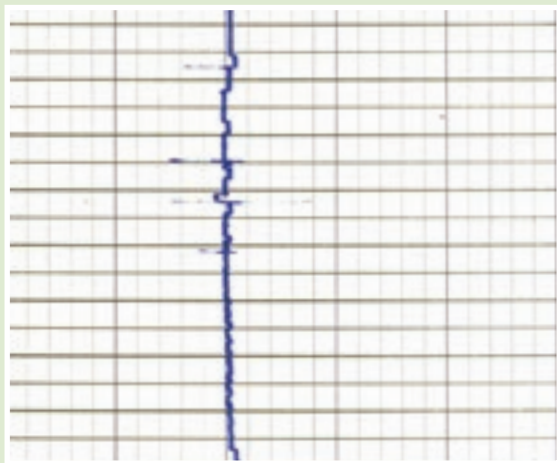
## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	NATURAL RESOURCES	READILY BIODEGRADABLE
ENSIMOL KW conc	Level 3	conforms to classes I-IV	✓	✓	free		✓
KATAMIN BW 3.0	Level 3	conforms to classes I-IV	✓	✓	free		readily eliminable

## GLIDING PROPERTIES

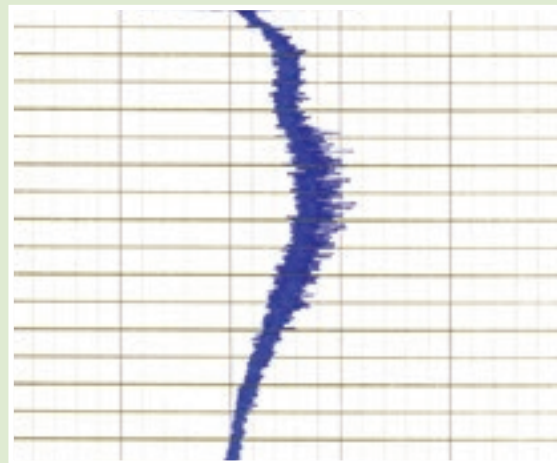
(Friction values, measured by Zweigle  $\mu$ -Meter)

KATAMIN BW 3.0



0 0.1 0.2 0.3 0.4 0.5

Competitive product



0 0.1 0.2 0.3 0.4 0.5

The pictures show significantly lower friction values when using KATAMIN BW 3.0 compared to a similar competing product. The very even distribution over the whole bobbin results in lower yarn break rates and thus higher efficiency in further processing as well as in lower bairiness in knitted goods.



# ANTI-YELLOWING AGENTS

PROTELAN LTY is used to prevent phenolic yellowing on polyamide, polyester and blends with elastane. Since the product is highly effective even at 40 °C, the process time for anti-yellowing protective treatment can be shortened, and energy can be saved. PROTELAN LTY is readily biodegradable.

PROTELAN CF2 is used to reduce thermal yellowing of polyamide and polyamide/elastane, which is caused by fixing or by contact heat during molding. The result is a high degree of whiteness and brilliant colours. Combined with the ECONBright process, process time and production costs can be significantly reduced. PROTELAN CF2 is readily biodegradable.

PROTELAN PSP is a highly effective anti-yellowing agent designed to reduce yellowing of polyamide and blends with elastane. PROTELAN PSP imparts excellent results and offers durability to washing. Consequently, protection against yellowing is guaranteed after several household wash cycles. PROTELAN PSP is free of nitrogen.

## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	APEO-FREE	FORMALDEHYDE-FREE	READILY BIODEGRADABLE
PROTELAN LTY	Level 3	conforms to classes I-IV	✓		free	✓	✓	✓
PROTELAN CF2	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
PROTELAN PSP	Level 3	conforms to classes I-IV	✓		free	✓	✓	eliminable





# LT ANTI-YELLOWING



The anti-yellowing product PROTELAN LTY produces efficient effects even at low temperatures and allows for ecological and economical processes.

## BENEFITS

- ▶ Excellent protection against yellowing at 40 °C
- ▶ Short process time
- ▶ Provides savings in energy and time
- ▶ Combinable with selected softeners or stiffening agents
- ▶ Biodegradable

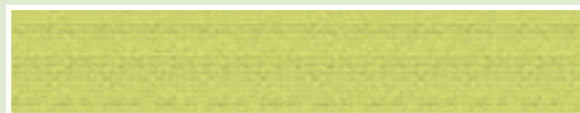
## PROTELAN LTY – THE HIGHLY EFFECTIVE ANTI-YELLOWING AGENT FOR POLYAMIDE AND MIXTURES, DESIGNED FOR LOW-TEMPERATURE APPLICATION

Phenolic yellowing protection of PROTELAN LTY on polyamide/elastane.

Test method: Phenolic Yellowing Test M&S C20B



With 4% PROTELAN LTY



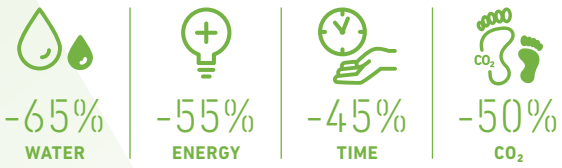
Without protection against yellowing







# ECONDye

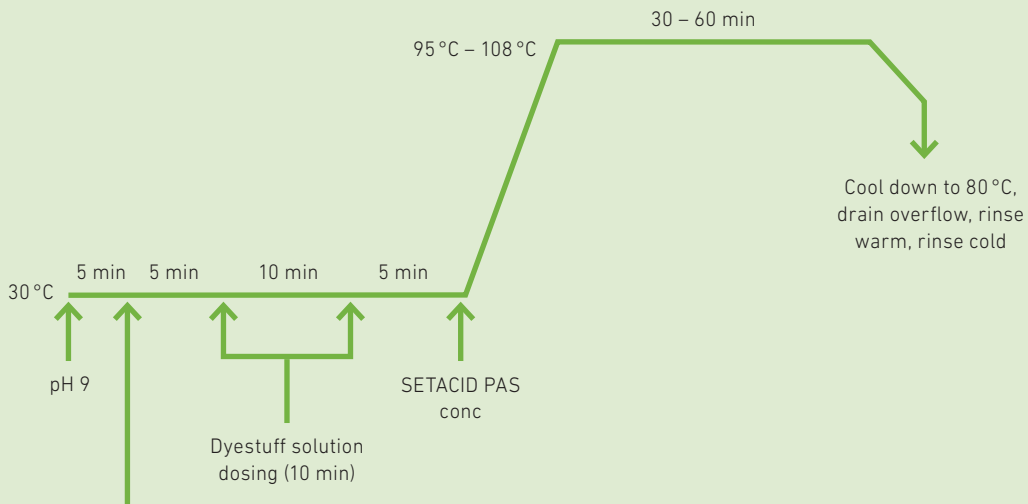


ECONDye is the innovative process for single-bath washing and dyeing of polyamide fibres and their blends with elastane – because we need water to live, not to dye.

## BENEFITS

- ▶ Water saving up to 65%
- ▶ Wastewater saving up to 65%
- ▶ Time saving up to 45%
- ▶ Energy saving up to 55%
- ▶ Increased production capacity

## ECONDye – THE INNOVATIVE PROCESS FOR THE SUCCESSFUL TREATMENT OF POLYAMIDE FIBRES AND THEIR BLENDS WITH ELASTANE



Test conditions:  
The savings have been measured against a standard process carried out in a 2-bath process.



# DYEING AUXILIARIES FOR NATURAL FIBRES

SETACID AB conc is a buffer solution for the pH adjustment of dye baths in the acidic range. The excellent pH consistency ensures reliable reproducibility. SETACID AB conc is a concentrated preparation, which renders it particularly resource-efficient.

LUBATEX LV conc, based on natural raw materials, is a highly concentrated crease-preventing agent for all types of fibres. The use of LUBATEX LV conc increases process reliability and reproducibility while saving resources.

ZS-DYESET RFT is a highly effective dyebath conditioner for "right-first-time" dyeings of cellulosic fibres and their blends. Due to its excellent dispersion of reactive dyes as well as sequestering of water hardness elements and heavy metal ions, ZS-DYESET RFT improves dyebath stability and reproducibility to a top level. Dyehouses may avoid multiple dyeing cycles and save re-dyeings and corrections of shade as well. The "right-first-time" ratio will be strongly increased, and consequently, process time and energy will be saved as well. ZS-DYESET RFT is bluesign®- and GOTS-approved.

## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	bluesign®	GOTS	SVHC	NATURAL RESOURCES	READILY BIODEGRADABLE	FORMALDEHYDE-FREE
SETACID AB conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
LUBATEX LV conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
ZS-DYESET RFT	Level 3	conforms to classes I-IV	✓	✓	free			✓
ZETESAL LTS	Level 3	conforms to classes I-IV	✓	✓	free			✓
ZETESAL SRO	Level 3	conforms to classes I-IV	✓	✓	free		✓	✓
ZETESAL FIX	Level 3	conforms to classes I-IV	✓	✓	free		readily eliminable	✓



ZETESAL LTS is an after-soaping agent for reactive dyeings and printings on cellulose fibres. The use of ZETESAL LTS allows soaping to take place at 70 °C to achieve excellent wash fastness. Environmentally friendly low-temperature soaping using ZETESAL LTS leads to significant savings in process time and energy.

ZETESAL SRO is our environmentally friendly soaping agent of reactive dyeings. It is readily biodegradable (OECD 301B > 60%), phosphor- and nitrogen-free.

For even better wash fastness, the formaldehyde-free ZETESAL FIX is used for the aftertreatment of reactive dyeings and printings to enable a faster after-soaping process.



# LT SOAPING



The fastness of reactive dyes is improved with the after-soaping agent ZETESAL LTS, which is effective even in the low-temperature soaping process.

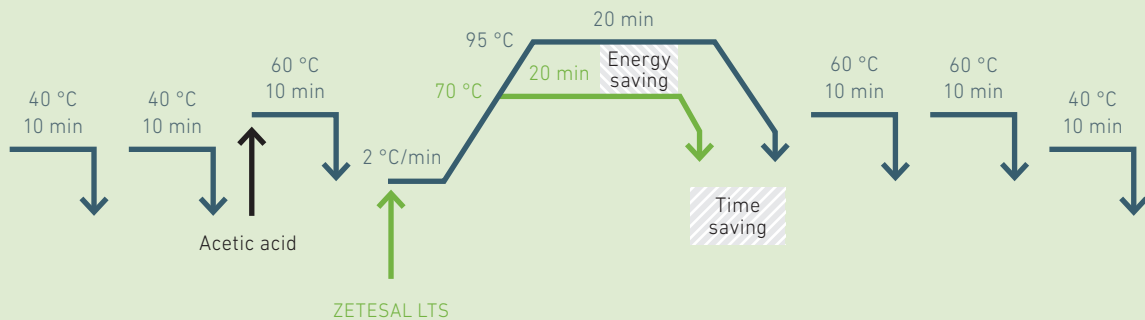
## BENEFITS

- ▶ Excellent soaping effects for reactive dyeings on cellulosics
- ▶ Soaping at 70 °C is possible
- ▶ Provides savings in energy and time
- ▶ Improves fastness properties

## LT SOAPING – OUR SUSTAINABLE SOAPING TECHNOLOGY AFTER REACTIVE DYEINGS

Standard soaping vs. eco-friendly low-temperature soaping

— Standard process — LT Soaping







# DYEING AUXILIARIES FOR SYNTHETIC FIBRES

The SETAVIN PE levelling and dispersing agent is used for the dyeing of polyester under HT conditions. It is based on renewable raw materials and conserves resources thanks to its concentrated form.

SETAVIN PLD is a highly efficient levelling agent for the dyeing of polyester. SETAVIN PLD leads to a well-balanced levelling effect, synchronises the exhaustion of the dyes and has an outstanding dispersing effect on disperse dyes. Its application fields are exhaust and continuous dyeing. Due to its selected ingredients, SETAVIN PLD can also be used for the dyeing of automotive textiles. SETAVIN PLD is bluesign®-approved, blue rated and fulfils the requirements of the Global Recycled Standard (GRS) as well.


SETAVIN SU-E is a concentrated levelling agent for the dyeing of polyester, polyester microfibres and polyester/elastane blends. The possibility to dye at low temperatures (120 °C) enables energy savings and shorter production times. The low-foaming properties of SETAVIN SU-E reduce the need for additional defoamers.

ZETESAN REP is the specialist for recycled polyester (rPET). It has highest dispersing and binding power for oligomers and other stains on recycled polyester, virgin polyester and other blends. The usage of ZETESAN REP avoids the so-called "grey veil" in dyeing. Furthermore, it improves the running properties of yarns during their processing.

ZETESAN REP can also be used in reduction-clearing processes and machine cleaning. The product is bluesign®-approved and meets the Global Recycled Standard (GRS) – and thus supports a circular economy and sustainability.

ZETESAL NWM is an after-cleaning agent for polyester and polyester/wool blends which is free of sulphur and saves wastewater. ZETESAL NWM helps achieve significantly shorter process times and reduced water and energy requirements.

SETAVIN LNY is an all-round levelling agent for the dyeing of polyamide. It has dyestuff and fibre affinity and shows excellent migration properties even with high-affinity dyestuffs. SETAVIN LNY is suitable for acid, metal complex, direct and reactive dyestuffs and can also be used in automatically dosing units. SETAVIN LNY is bluesign®-approved and blue rated.

 ZETESAL ECO-FIX PA is the latest sustainable, plant-based premium fixing agent for polyamide fibres. The product is free of any bisphenol, phenol and formaldehyde. ZETESAL ECO-FIX PA is vegan, eco-friendly and made out of renewable raw materials which are not used as food or feed. The plant-based fixing agent has been designed in order to achieve highest fastness levels and to avoid "aging". ZETESAL ECO-FIX PA is part of our ECOLUTION range.

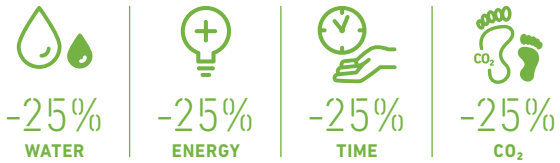


## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	GRS	NATURAL RESOURCES	READILY BIODEGRADABLE
<b>AUXILIARIES FOR POLYESTER DYEING</b>								
SETAVIN PE	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
SETAVIN PLD	Level 3	conforms to classes I-IV	✓		free	✓		✓
SETAVIN SU-E	Level 3	conforms to classes I-IV	✓		free	✓	✓	readily eliminable
ZETESAN REP	Level 3	conforms to classes I-IV	✓		free	✓	✓	
ZETESAL NWM	Level 3	conforms to classes I-IV	✓	✓	free	✓		readily eliminable
SETACID AB conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
LUBATEX LV conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
<b>AUXILIARIES FOR POLYAMIDE DYEING</b>								
SETAVIN LNY	Level 3	conforms to classes I-IV	✓		free	✓		readily eliminable
ZETESAL ECO-FIX PA	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
SETACID AB conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓
LUBATEX LV conc	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓



# LT DYEING AND ZS CLEARING SYSTEM

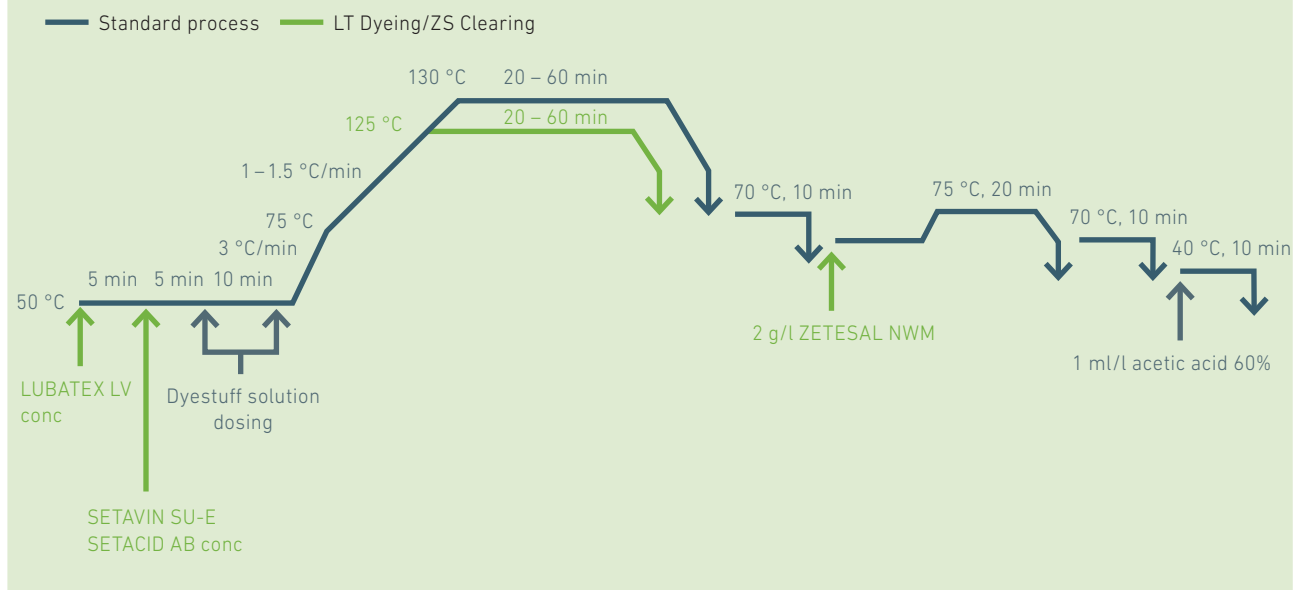


The eco-friendly systems for polyester articles and blends with elastane facilitate the dyeing and aftertreatment process in both ecological and economic aspects. After the textile has been dyed in our ecological LT Dyeing process, ZS Clearing enables you to wash it in an environmentally friendly way.

## BENEFITS

- ▶ Provides savings in water, wastewater and energy
- ▶ Significant reduction of COD in the wastewater load
- ▶ Less energy consumption
- ▶ Shorter process time

## STANDARD PROCESS VS. ECO-FRIENDLY LT DYEING/ZS CLEARING







# RECYCLED POLYESTER – rPET

ZETESAN REP is the specialist for recycled polyester (rPET).  
The product helps to decrease environmental pollution and supports a circular economy and sustainability.

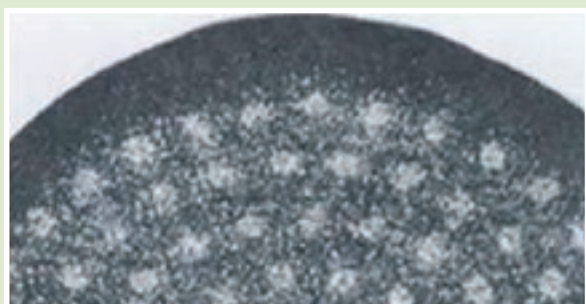
## BENEFITS

- ▶ Excellent dispersing and removing of oligomers and other stains
- ▶ Avoids "grey veil" on rPET fabric
- ▶ Used inside dyebath without influence on shade
- ▶ Further applications in reduction cleaning processes and cleaning of machines
- ▶ Improves running properties of yarn processing

## ZETESAN REP – EXCELLENT OLIGOMER AND STAIN REMOVING

Oligomer dispersing test in acid dyebath

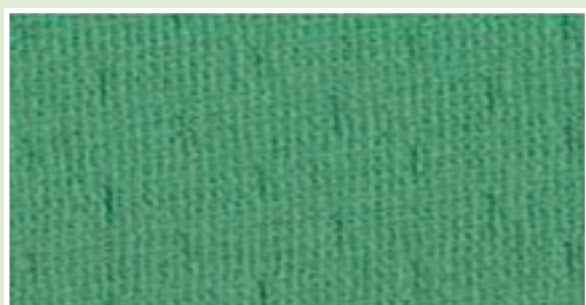
(1.5 g/l oligomers, 130 °C 20 min, 70 °C, black paper filtration)



No dispersing agent



ZETESAN REP



"Grey veil"



No "grey veil"






# FINISHING

The cationic softener ADULCINOL T7515 is primarily used for cellulose textiles. In addition to the ecological benefits – the product is readily biodegradable and GOTS- and bluesign®-approved – ADULCINOL T7515 ensures an exceptionally smooth handle and is highly resistant to yellowing.

CEFASOFT GW is an AEEA-free, non-yellowing softener and compatible with optical brighteners and resin-finishing products. The chemical character of this softener meets the most common requirements of eco-labels such as bluesign®, ZDHC MRS L or STANDARD 100 by OEKO-TEX®. CEFASOFT GW can be universally applied to all kinds of fibres. It imparts a pleasant, soft touch to the goods, improves the sewability of knitwear and hence prevents needle damage to stitches in ready-to-wear manufacturing.

The bluesign®-approved silicone-based softener CEFASOFT SGL with siloxane D4/D5/D6 contents of less than 0.1% is used for the finishing of piece goods made of cellulose, wool and synthetic fibres. It imparts a very pleasant and smooth handle to the goods and considerably improves the sewability and elasticity of knitwear. Since the product is a macro-emulsion, it mainly affects the surface touch of the textile goods: the typical smooth and very soft “silicone touch” can be achieved.

 Our sustainable and plant-based CEFASOFT ECO-SEW improves the sewability properties of knitted goods. Due to its distinctive smoothing effect, it prevents hole formation during sewing. Furthermore, CEFASOFT ECO-SEW imparts typical gliding properties to strings, zippers, ropes and similar articles, thus improving wear quality.

CONTRIPON S is a silicone-based, universally applicable foam-preventing and defoaming agent with siloxane D4/D5/D6 contents of less than 0.1%. This defoamer can be used in nearly all textile finishing processes to prevent or reduce foam formation, thus increasing the safety of finishing processes and enabling a high production speed. Due to its very high efficiency and effectiveness, only extremely low quantities are necessary – which helps protect our environment as well.

 HYDROSET ECO-DRY is a moisture-wicking agent based on natural raw materials. It helps to transport sweat and moisture away from the body to the outer surface of the clothing where it can evaporate. This makes it especially suitable for functional fabrics such as sportswear.



AIRMAX 2.0 is a special finishing agent which is able to improve indoor air quality by eliminating harmful substances (such as formaldehyde, ammonia or acetaldehyde) as well as reducing bad smells.

## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	GOTS	SVHC	NATURAL RESOURCES	READILY BIODEGRADABLE	FORMAL-DEHYDE-FREE	D4/D5/D6 SILOXANE
<b>SOFTENER</b>									
ADULCINOL T7515	Level 3	conforms to classes I-IV	✓	✓	free		✓	✓	free
CEFASOFT GW	Level 3	conforms to classes I-IV	✓	✓	free		✓	✓	free
CEFASOFT SGL	Level 3	conforms to classes I-IV	✓	✓	free		✓	✓	< 0.01%
CEFASOFT ECO-SEW	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓	free
<b>DEFOAMING AGENT</b>									
CONTRIPON S	Level 3	conforms to classes I-IV	✓	✓	free		✓	✓	< 0.01%
<b>MOISTURE MANAGEMENT</b>									
HYDROSET ECO-DRY	Level 3	conforms to classes I-IV	✓	✓	free	✓	✓	✓	free
<b>AIR QUALITY ENHANCER</b>									
AIRMAX 2.0		conforms to classes I-IV			free		*	✓**	free

\* The product contains an inorganic component which is non-biodegradable.

\*\* The product binds formaldehyde.



# ECOPROOF

Our ECOPROOF product line of fluorine- and silicone-free products has been specially developed to meet the requirements of eliminating PFOS and PFOA as critical substances while showing very good water repellency and wash resistance in combination with a soft handle.

ANTHYDRIN OFC is a high-quality durable water repellent agent for synthetic fibres and their blends with natural fibres up to 40% content.

ANTHYDRIN CFC is a high-quality durable water repellent agent for cellulosic fibres and their blends with synthetic fibres.

ANTHYDRIN DNF is a paraffine-based water repellent for all fibre substrates and types of textiles which gives the product a soft handle.

## ECOLOGICAL PROPERTIES

PRODUCT	ZDHC MRSL	STANDARD 100 by OEKO-TEX®	blue-sign®	SVHC	FORMALDEHYDE-FREE	FLUORINE-FREE	READILY BIO-DEGRADABLE
ANTHYDRIN OFC	Level 3	conforms to classes I-IV	✓	free	✓	✓	eliminable
ANTHYDRIN CFC	Level 3	conforms to classes I-IV	✓	free	✓	✓	eliminable
ANTHYDRIN DNF	Level 3	conforms to classes I-IV	✓	free	✓	✓	✓









# AIRMAX 2.0

AIRMAX 2.0 is a special finishing agent which is able to improve indoor air quality in the home or car by reducing bad smells as well as eliminating harmful substances.

## BENEFITS

- ▶ Eliminates harmful substances (e.g. formaldehyde and acetaldehyde) from living spaces
- ▶ Reduction of bad smells upon contact with indoor air
- ▶ Due to its catalytic activity, the product is effective for the whole life cycle of the textile
- ▶ Applicable in water-based liquors, coatings and dispersions and by spraying or padding
- ▶ Meets the requirements of GBT 27630

## INDOOR APPLICATION

- ▶ Carpets
- ▶ Curtains
- ▶ Wallpapers/wall paint
- ▶ Car interiors
- ▶ Hospitals
- ▶ Retirement homes

## REDUCTION OF POLLUTANTS BY AIRMAX 2.0

POLLUTANT	REDUCTION BY	TIME
ACETALDEHYDE	95%	after 16 hours
AMMONIA	95%	after 2 hours
FORMALDEHYDE	90%	after 2 days
ACETIC ACID	85%	after 8 hours
NICOTINE	70%	after 2 days

## CAR APPLICATION

- ▶ Carpets
- ▶ Headliners
- ▶ Seat covers
- ▶ Parcel shelf
- ▶ B pillar









# ECO LOGIC! PROCESSES

Our innovative ECO LOGIC! process technologies offer optimally tailored solutions for the textile user and lead to considerable savings in water and wastewater as well as lower energy consumption, reduced process times and carbon footprint in comparison to conventional processes. Therefore, ECO LOGIC! processes not only enable the responsible stewardship of our environment, but also offer economic benefits, such as high production reliability, consistent product quality and enhanced competitiveness for our customers.

## PROCESS SAVINGS

PROCESS	POTENTIAL SAVINGS				
<b>CELLULOSICS</b>					
COLD WHITE	Low-temperature bleach	15%	25%	35%	20%
AOB Dyeing	Reactive dyeing with alkali supplier	15%	25%	35%	20%
LT Soaping	Low-temperature soaping of reactive dyes	–	30%	10%	20%
<b>POLYAMIDE AND BLENDS WITH ELASTANE</b>					
ECONBright	One-bath scouring and optical brightening	65%	55%	45%	50%
ECONDye	One-bath scouring and dyeing	65%	55%	45%	50%
ECONFix	One-bath dyeing and fixing	40%	25%	35%	30%
LT Anti-yellowing	Low-temperature anti-yellowing	–	20%	40%	10%
<b>POLYESTER AND BLENDS WITH ELASTANE OR COTTON</b>					
PQD	Polyester quick dyeing	–	30%	50%	15%
ZS Clearing system	Afterclearing PES/EL	25%	25%	25%	25%
ZS Clearing system	Afterclearing PES/CO	25%	30%	25%	30%



# PRODUCT REGISTER

PRODUCT NAME	bluesign®-APPROVED	ZDHC MRSL **	GOTS	STANDARD 100 BY OEKO-TEX® ***	PAGE
ADULCINOL T7515	✓	✓	✓	✓	30
AIRMAX 2.0		*		✓	31, 34
ANTHYDRIN CFC	✓	✓		✓	32
ANTHYDRIN DNF	✓	✓		✓	32
ANTHYDRIN OFC	✓	✓		✓	32
CEFASOFT ECO-SEW	✓	✓	✓	✓	30
CEFASOFT GW	✓	✓	✓	✓	30
CEFASOFT SGL	✓	✓	✓	✓	30
CONTRIPON S	✓	✓	✓	✓	30
ENSIMOL KW conc	✓	✓	✓	✓	14
HYDROSET ECO-DRY	✓	✓	✓	✓	30
KATAMIN BW 3.0	✓	✓	✓	✓	14
LUBATEX LV conc	✓	✓	✓	✓	20, 25
NEWALOL PFN	✓	✓	✓	✓	10
OPTAVON LTB	✓	✓		✓	8
PROTELAN CF2	✓	✓	✓	✓	15
PROTELAN LTY	✓	✓		✓	15, 16
PROTELAN PSP	✓	✓		✓	15
SETACID AB conc	✓	✓	✓	✓	8, 20, 25
SETAVIN LNY	✓	✓		✓	24
SETAVIN PE	✓	✓	✓	✓	24
SETAVIN PLD	✓	✓		✓	24
SETAVIN SU-E	✓	✓		✓	24
SINCAL EBC	✓	✓	✓	✓	8
TISSOCYL COD	✓	✓	✓	✓	8
TISSOCYL ECO-WASH S	✓	✓	✓	✓	10
TISSOCYL RC 9	✓	✓	✓	✓	10
ZETESAL ECO-FIX PA	✓	✓	✓	✓	24
ZETESAL FIX	✓	✓	✓	✓	20
ZETESAL LTS	✓	✓	✓	✓	20, 22
ZETESAL NWM	✓	✓	✓	✓	24
ZETESAN REP	✓	✓		✓	24, 28
ZETESAL SRO	✓	✓	✓	✓	20
ZS-DYESET RFT	✓	✓	✓	✓	20

\* Products comply with ZDHC MRSL    \*\* ZDHC Gateway™ conformance level 3    \*\*\* Products comply with classes I – IV

# LIST OF ABBREVIATIONS

<b>AEEA</b>	AMINOETHYLETHANOLAMIN
<b>APEO</b>	ALKYL PHENOL ETHOXYLATES
<b>BOD</b>	BIOCHEMICAL OXYGEN DEMAND
<b>COD</b>	CHEMICAL OXYGEN DEMAND
<b>GOTS</b>	GLOBAL ORGANIC TEXTILE STANDARD
<b>GRS</b>	GLOBAL RECYCLED STANDARD
<b>HT</b>	HIGH TEMPERATURE
<b>LT</b>	LOW TEMPERATURE
<b>PFC</b>	PERFLUOROCARBONS
<b>PFOA</b>	PERFLUOROOCTANOIC ACID
<b>PFOS</b>	PERFLUOROOCTANESULFONIC ACID
<b>SVHC</b>	SUBSTANCES OF VERY HIGH CONCERN
<b>WHC</b>	WATER HAZARD CLASS (GERMAN REGULATION)
<b>ZDHC</b>	ZERO DISCHARGE OF HAZARDOUS CHEMICALS
<b>MRSL</b>	MANUFACTURING RESTRICTED SUBSTANCES LIST
<b>ZS</b>	ZSCHIMMER & SCHWARZ



## Chemistry tailor-made

### ► EUROPE

#### **Zschimmer & Schwarz**

Mohsdorf GmbH & Co. KG  
Chemnitztalstrasse 1  
09217 Burgstaedt | DE  
T +49 3724 67-0 | F +49 3724 67-209  
info.zsm@zschimmer-schwarz.com  
zschimmer-schwarz.com

#### **Zschimmer & Schwarz**

GmbH & Co KG Chemische Fabriken  
Max-Schwarz-Strasse 3-5  
56112 Lahnstein | DE  
T +49 2621 12-0 | F +49 2621 12-407  
info@zschimmer-schwarz.com  
zschimmer-schwarz.com

#### **Zeta Esse Ti S.r.l.**

Via Angelo Ariotto, 1/B  
13038 Tricerro (VC) | IT  
T +39 0161 80 86 01 | F +39 0161 80 73 63  
info.zst@zschimmer-schwarz.com  
zetaeseti.it

### ► AMERICA

#### **Zschimmer & Schwarz**

do Brasil Ltda.  
Estrada Geral Morro do Paula 546  
Distrito Industrial - Bairro São Borja  
93032-530 São Leopoldo RS | BR  
T +55 51 3566 1666 | F +55 51 3566 2003  
zsb@zschimmer-schwarz.com.br  
zschimmer-schwarz.com

#### **Zschimmer & Schwarz**

Argentina S.A.  
Calle 7 N° 279  
B1629MXA Parque Industrial Pilar/  
Buenos Aires | AR  
T +54 230 4529 050 | F +54 230 4529 060  
zsa@zschimmer-schwarz.com.ar  
zschimmer-schwarz.com

#### **Zschimmer & Schwarz**

México S.A. de C.V.  
Carretera Estatal 431 Km. 2 + 200,  
Calle 2 Lote 6  
Parque Tecnológico Innovación  
Querétaro  
CP 76246 El Marqués, Querétaro | MX  
T +52 442 256 75 00 - 10  
info@zschimmer-schwarz.com.mx  
zschimmer-schwarz.com

### ► ASIA

#### **Zschimmer & Schwarz**

India Private Limited  
Plot 53 Alankar Society  
Karve Nagar  
Pune, Maharashtra 411052 | IN  
T +91 20 2546 9004 | M + 91 98 6028 0709  
n.kothari@zschimmer-schwarz.com  
zschimmer-schwarz.com

#### **Zschimmer & Schwarz**

Chemical (China) Co., Ltd.  
No. 16, Kaiyuan Road  
Datang Industrial Park  
Sanshui, 528143 Foshan, Guangdong | CN  
T +86 757 87 27 06 01 | F +86 757 87 27 06 09  
zsc@zschimmer-schwarz.cn  
zschimmer-schwarz.com

#### **PT. Zschimmer and Schwarz Asian**

Jl. Jababeka Raya, Blok A1E,  
Kawasan Industri Jababeka – Cikarang  
Desa Pasir Gombong, Kecamatan Cikarang Utara  
Bekasi 17530 | ID  
T +62 21 8984 4545 | F +62 21 8984 5460  
zschimmer-schwarz.com