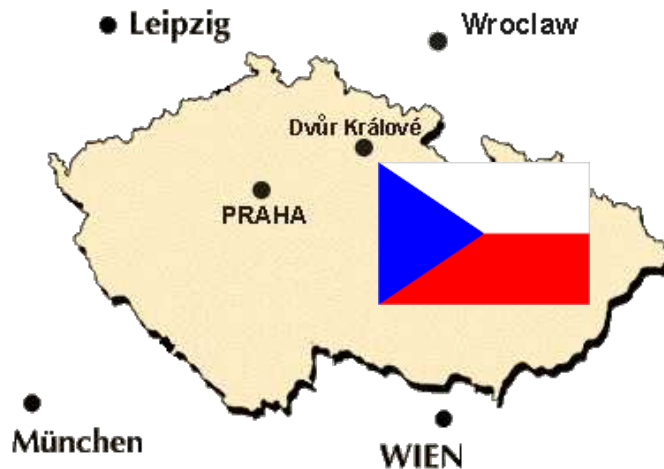


Private small textile innovation company: R&D, textiles and auxiliaries production, technologies development, optimisation and technology transfer

- Successor of former Textile Finishing Research Institute founded in 1949
- Privatized in 1996 (Ltd.)
- SME: 27 employees



CZ 544 01 Dvůr Králové n.L.
info@inotex.cz, www.inotex.cz

Working in heart of European textile production

- **TEXTILE AUXILIARY AGENTS**

customised R&D, production, sales and distribution

- **DYES**, colouristic department

colour matching and calculation of dyeing recipes

- **SMALL-SCALE**

finishing / coating capacity

short runs production



- **NEW TECHNOLOGIES**

development and transfer,
flexible service, cleaner production,
sustainability, dematerialization

- **ACCREDITED TESTING LABORATORY** ISO EN 17025

- **ECO SERVICES AND CONSULTANCY**

- **SPECIAL MACHINERY** equipment
and devices production



Innovative technologies for sustainable textiles

■ Technologies implantable in common textile processing mills

- reduction of energy consumption
- reduction and elimination of harmful substances
- utilization of bio-based / renewable raw materials
- reduction of textile waste volume
 - service life prolongation
 - compatibility with legislation



■ Circular economy – solutions for sorting and recycling

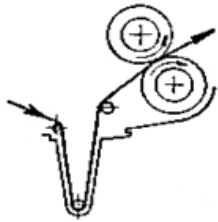
Innovative technologies for sustainable textiles

- inoTEX®**
- Production and distribution of TAA and dyetuffs
 - Technologies development, optimization and transfer

- Technological lab → Pilot plant → Industrial production
- TAA small scale production, short run textile processing
- Flexible service during technologies and TAAs/dyes implementation in textile mills
- Colouristic department – colour matching service
- Accredited lab ISO EN 17025
- Eco/envi-affairs department, ensuring compliancy with legislation
- R&D – participation in national and international projects
- Cooperation with companies, universities, technol. centres – specialized labs/technological background



Impregnation processes



*Impregnation fouldard
scheme*

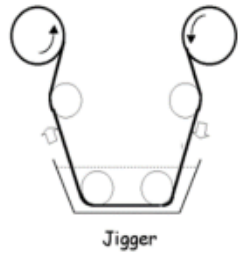


*Continuous pilot line Werner-Mathis, (technol. lab.
INOTEX)*

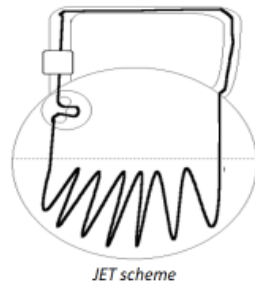


Industrial scale fouldard and stenter/fixing frame – production capacity INOTEX

Exhaustion processes



Lab jigger (technol. lab. INOTEX and ind. jigger Twin-Jig (industrial production capacity INOTEX)

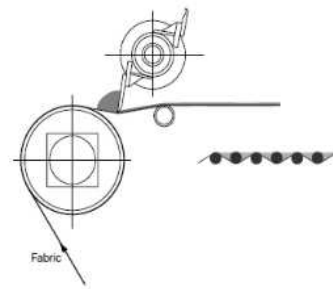


Labomat sample dyeing device and lab. JET – Overflow (technol. lab. INOTEX)

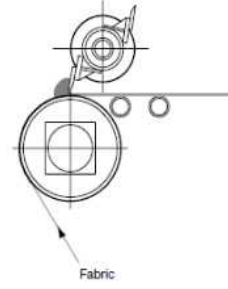


Coatings

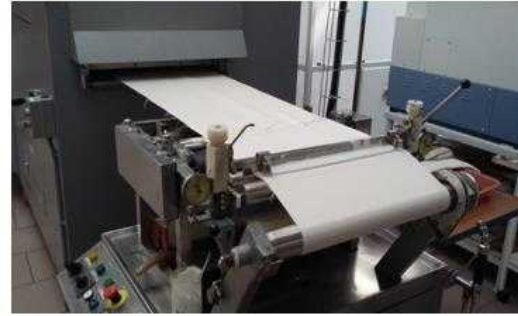
inoTEX®



Coating – Air knife



Coating – knife against roller



Device for sample coating ROACHES and pilot conti-line Werner-Mathis in coating regime (technol. lab. INOTEX)



Industrial coating device: NSFR frame with coating head (production capacity INOTEX)

VARIABLE PILOT LINE – continuous processes optimization up to 48 cm width (coatings 45 cm)

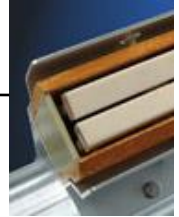
LED-UV

$\lambda = 395 \text{ nm}, 365 \text{ nm}$
max. intensity 12 W/cm^2
Air cooling
Adjustable output 0-100 %

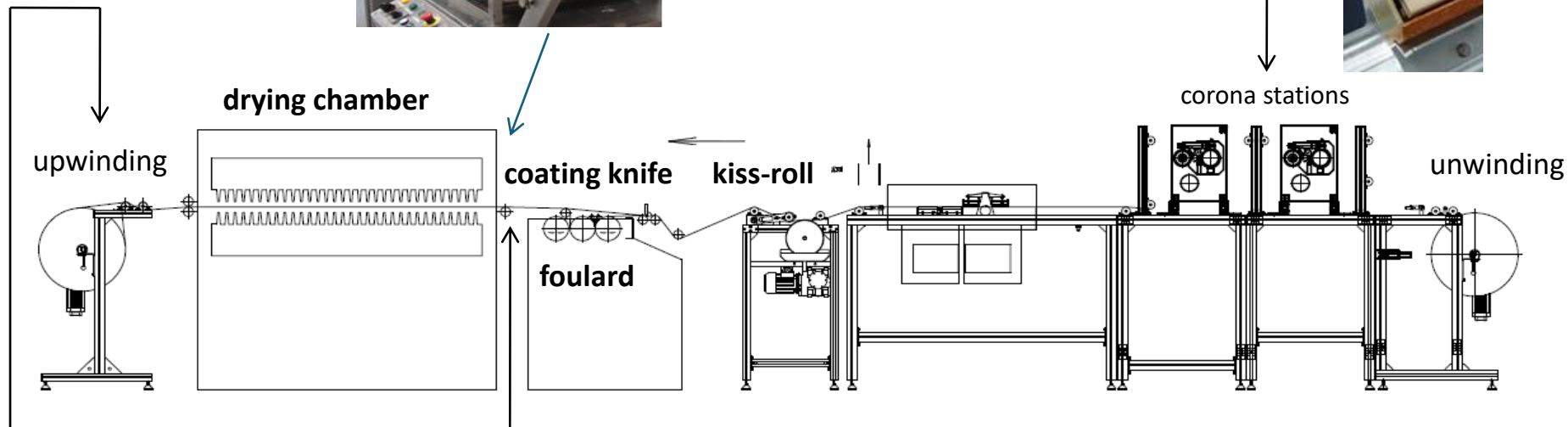


Optional premodification steps

CORONA
(2X 1000 W)



corona stations



**LINE OUTPUT
LED-UV**



**MOBILE IR-HEATER
KRELUS (2x 2,5 kW)**



Adjustable line speed
and drying/fixing
temperature

inoTEX®

Cationization of natural fibers

Preactivation before reactive dyeing

Cotton * Viscose * Bast * Wool

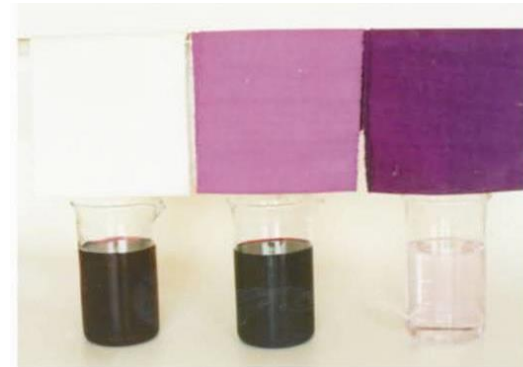
INCREASED ANIONIC DYES AFFINITY

- ✓ Significantly higher dyeing yield
– higher dyes utilization
- ✓ Deep shades unattainable
by conventional dyeing process
- ✓ Less salt / Salt free
- ✓ Special colouristic effects
(differential dyeing, vintage,..)
- ✓ Shortening of wash-out step
- ✓ Reduction of effluent colouration,
easy water re-use – no desalination

Reduction of costs

lower consumption of

- water
- dye
- energy
- time



*Before
dyeing*

*Non
modified*

*Cationized
substrate*

TEXAMIN ECE New

+ TEXALKON MS
precise buffer

1. Cationization of cellulose by **TEXAMIN ECE**

jigger, PAD-BATCH, PAD-DRY

2. Dyeing

exhaust (jigger, drum machine),
PAD-BATCH, PAD-STEAM, PAD-DRY



GreenScreen Certified™
silver certificate from
Clean Production Action,
Inc. (USA)

Optimized dyeing process
electrolyte/alkali calculation

Dye	Without cationization	With cationization
1 Sunifix Supra Yellow JRF 150%		
2 Synozal Deep Red BB		
3 Sunifix Turquoise Blue G		
4 Sunifix Deep Blue E-XF		
5 Sunifix Supra Brown RNP		

APPLICATION EXAMPLES OF TEXAMIN ECE New

Dyeing of Co (cellulosics) with natural plant dyes

dyestuf	non cationized	pre- cationized
Natural Indigo		
Punica granatum		
Rubia Cordifolia		
Kerria lacca		
Terminalia Chebula		
Acacia Catechu		
Rheum emodi		
Quercus Inofectoria		

Natural dyes mostly need tanning with metal salts or cationic agents before dyeing. The dyeing tests were realised on pre-cationized 100% Co fabric with **TEXAMIN ECE new** and compared with coloration on the same – not cationized fabric. **Dyeing with natural indigo was realised after vatting by 50°C/30 min., the other dyes by 95°C/30min., 4% colour concentration.**

Cationization of natural fibers

TEXAMIN ECE New

Special dyeing effects

➤ Differential dyeing

Effect based on different dyeability by Re, metal complex dyes



➤ Cationization by printing

Printing in different concentration on cellulosics, then dyeing with Metalcomplex dyestuffs

tone-in-tone effects



Cationization of WOOL

- Differential dyeing (combed top, yarn,..)
- Antifelting effect, dimensional stability



garment processing
wash-out effect

Be Environment-Friendlier

Dyehouse Waste-Water Decolourization

TEXAFLOK DCL 41

Simple conditions of use:

- pH above 8,5
- temperature below 40 °C
- anionic dyes (other classes co-precipitate)
- dosage (pre-dilution 1+9 p water)
- sludge reduction



Cationic type of organic flocculant developed specially for textile wastewater decolorization

Soluble dyestuffs (reactive, direct, acid,...) change to insoluble compounds

Coagulating reaction is speedy in alkaline conditions

Texaflok DCL is able to decolorize:

- slightly colored water
- residual exhausted dyeing bath

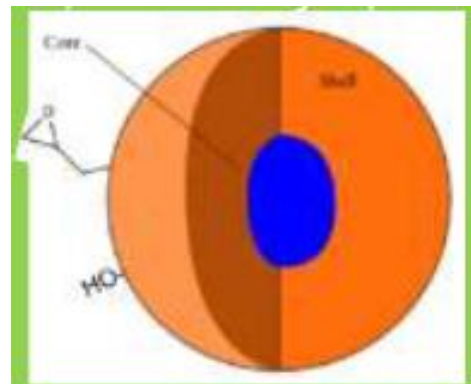
Coagulate is easy separable or it is possible to discharge into sewage clarification plant together with clarified water

Dosage of product and coagulate formation are both depend on wastewater color intensity

ECO-friendly F-free DWR system

TEXAFOB ARK

*based on hybrid paraffin/acrylic system
with cross-linking groups (no extender needed)*



INOTEX – application technologies, effects evaluation, industrial upscale

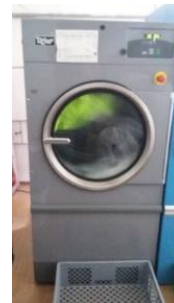
- Application by impregnation or exhaustion/laundry processing (garment finishing)
- Upscaling: lab. – pilot plant – industrial
- Water repellency EN ISO 4920 (spray test) similar to FC6 or F-free paraffins
- Effect improved after washing (hydrophilic components wash-off)
- Multifunctional finishing
 - hydrophobic/FR (EN ISO 14116), TEXAFLAM CFR – cotton, blends
 - hydrophobic/antistat (ČSN 1149-1),
C-fibre – 98%PES/2% Resistat, FR Ba/PES/Resistat
 - hydrophobic/antimicrobial /self-cleaning/ (EN ISO 20743),
FreshDye – cotton, Co/PES



Prolongation of functional textiles/garments service life

- Functionalization by laundry processing

- *Reactivation of functional effects after determined maintenance cycles*
- *Dematerialization and energy saving*



Barrier effects for:

- Protective clothing, healthcare, gastro-service, food processing
- Bedlinen, home textiles, accomodation facilities

➤ Flameproof:

- washpermanent **TEXAFLAM CFR**
- dry cleaning permanent **TEXAFLAM LP, CU**



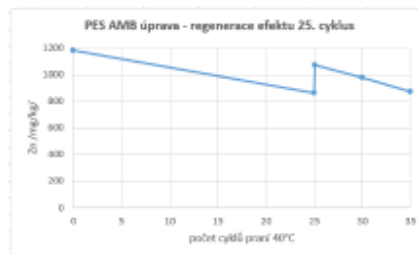
➤ DWR, antistain: **TEXAFOB ARK** (F-free)

- milder maintenance conditions – water and energy saving
- prevention of greasy and coloured staining
- lower effluents discharge
- PPE service-time prolongation (fiber-friendly, waste reduction)

➤ Antimicrobial: **SANITIZED T11-15**

➤ Combined barrier effects

- FR/DWR
- antimicrobial/DWR
- hi-vis colouration



Reactivation of effect by laundry

LENA 65 PES/35 cotton BAYGARD BCS-01	Bez úpravy							
	water	coffee	milk/ juice	red wine	olive oil	motor oil	mustard	ketchup
0 min								
5 min								
drop removed								
Evaluation	4	4	4	3-4	4	4	4	4
washed 5x40°C								
0 min								
5 min								
drop removed								
Evaluation	4	4	4	4	4	4	4	4
washed 10x40°C								
0 min								
5 min								
drop removed								
Evaluation	4	4	4	3-4	4	4	4	4
washed 20x40°C								
0 min								
5 min								
drop removed								
Evaluation	4	4	4	3-4	4	4	3-4	3-4
washed 30x40°C								
0 min								
5 min								
drop removed								
Evaluation	4	4	4	3-4	4	3-4	3-4	3-4

Nešpinivý efekt (hydrofobní i oleofobní) stálý min v 30 cyklech praní při 40°C (+ žehlení)

Fresh Dye



INOTEX spol. s r. o.

FreshDye – FUNCTIONAL DYEING OF COTTON AND Co/PES FOR REUSABLE **FACE MASKS, CLOTHING, BEDLINEN, FILTERS** WITH **WASHSTABLE SELF-CLEANING EFFECT**

Functional dyeing of Co and Co/PES

Fotosensitive phthalocyanines – functional dyeing

Face masks, staff clothing, bedlinen

High wearable comfort



Special reusable face-masks form cotton or Co/PES with self-cleaning effect based on photoactive dyeing with singlet oxygen generation under illumination with daylight or common artificial light. Short living oxygen form decomposes pollutants and microorganisms.

Testing of the material safety have been performed in the National Institute of Public Health (Prague) and Textile testing Institute (Brno) according to EN ISO 20 743 and JIS Z 2801. The self-cleaning effect is stable mini. in 50 washings at 60°C.

Suitable for health care sector: face masks, (medical staff clothing, bed linen, face masks, filters as a nosocomial infections prevention.

FreshDye technology of functional dyeing transferred into industrial production.



Antimicrobial effect: EN ISO 20743

(National Public Health Institute Prague)

Antiviral effect: BS ISO 18184:2019

(Health Inst. Ostrava: SARS-CoV-2)



inoTEX®

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Czech Republic

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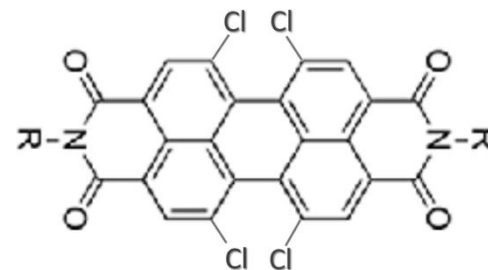
Photoactive perylenes (PDIs) for functional dyeing

Cotton – vat dyeing

Polyester – disperse dyeing

SelfClean - self cleaning automotive and furnishing textiles

Colourfastness [deg]	1% R2– Cl₄PDI	2% R2– Cl₄PDI
water	4-5/4-5/4-5	4-5/4-5/4-5
washing 40°C	4-5/4-5/4-5	4-5/4-5/4-5
rubbing dry	4-5	4-5
rubbing wet	4	4
light	6	6
¹ O ₂ production [10 ² .min ⁻¹]	0,16	0,19



- Natural and synthetic fibres
- Self-cleaning textile surfaces
- No leaching into environment
- Pollutants degradation

Preparation (dyeing / vat dyeing)	Colorfastness	% production (100%)
100% cotton	water: 4-5/4-5/4-5 washing: 4-5/4-5/4-5 rubbing: 4-5/4-5/4-5 light: 6	0,16
100% polyester	water: 4-5/4-5/4-5 washing: 4-5/4-5/4-5 rubbing: 4-5/4-5/4-5 light: 6	0,19
100% cotton	water: 4-5/4-5/4-5 washing: 4-5/4-5/4-5 rubbing: 4-5/4-5/4-5 light: 6	0,16
100% polyester	water: 4-5/4-5/4-5 washing: 4-5/4-5/4-5 rubbing: 4-5/4-5/4-5 light: 6	0,19



	AMB effect	D65light	dark
A	<i>E. Coli</i>	3,65	-0,22
	<i>Ent. Faec.</i>	3,91	3,34

✓ Interior textil

✓ Coverings

✓ Drapes



AMB effect evaluation (EN ISO 20473)

$$A = (\log C_1 - \log C_0) - (\log T_1 - \log T_0) = F - G$$

Testing sample vs reference

- log difference of bacteria growth

Application by vat or HT disperse dyeng



SURFPROTECT

Innovative surface treatments with reduced risk of infections transmission

Project number: CZ.01.01.01/01/22_002/0000322

Duration: 42 months

Start date: 1 July 2023

- **Means of public transport**
- **Hospitals, accommodation facilities**
- **Shopping centres**

- Protecting synergic system - Combination of a self-cleaning photocatalytic system based on organic compounds active in visible light with the antimicrobial effect of conventional biocides
- Prevention of a biofilm formation and an uncontrolled proliferation of dangerous microorganisms
- Significant reduction of the risk of contamination of the surrounding environment with dangerous chemicals



synpo

COC

FORTES
INTERACTIVE

T FCH

inoTEX®

Functional barrier fabrics with nanomembrane for protective clothing - prevention of toxic substances penetration

FR laminates with combined protection

- **Self-cleaning aramide-based outer layer**

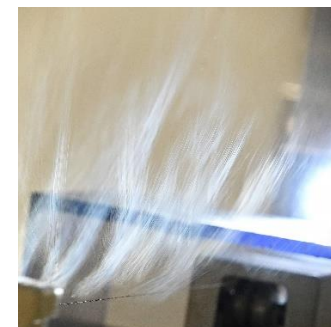
toxic pollutants degradation (model pollutants - DPIBF)

- **Thermal protection**

NIR absorbing cooling colorants

- **Barrier nanomembrane by electrospinning**

elimination of microparticles penetration



PHOTOCATALYTIC SYSTEMS

Fabrics for air cleaning and smell decomposition

- Curtains / Drapes
- Furniture textiles

TEXACTIV TiO₂



➤ Air pollutants decomposition

*VOCs (formaldehyde) released
from furniture, carpets and paints*

➤ Interior air quality improvement,
sick building syndrom alleviation
*offices, schools, kondergartens,
public buildings, hoseholds*

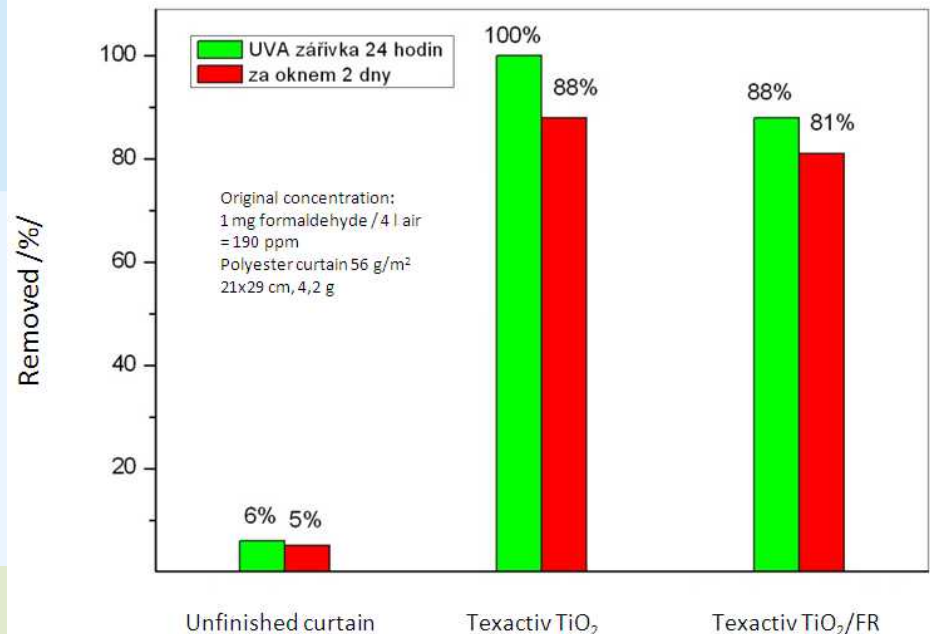
➤ **Combination with washpermanent
flameproof finishing (EN 1101)**

✓ **Complete pollutants decomposition**

✓ **Effect stable in min. 15 washings (40°C)**

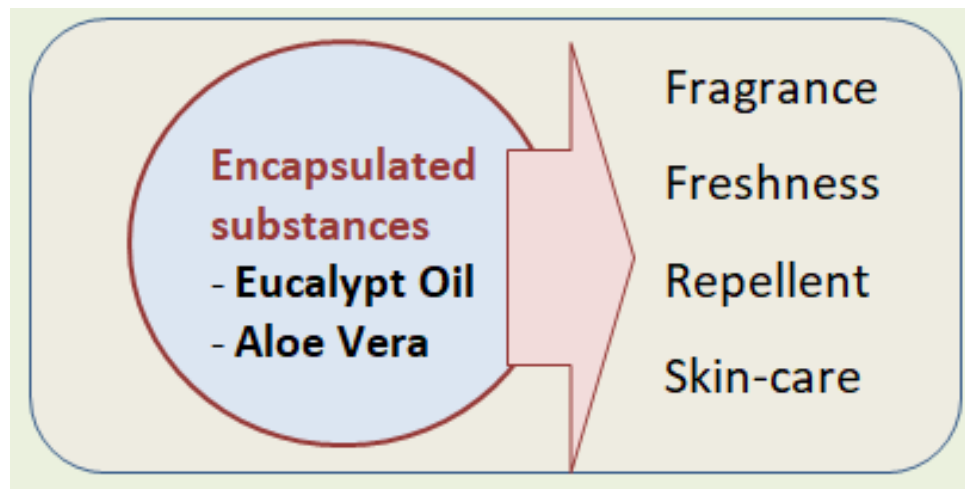
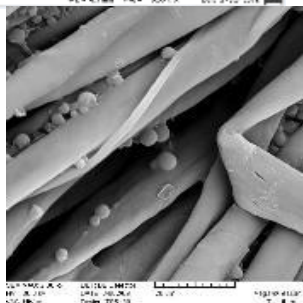
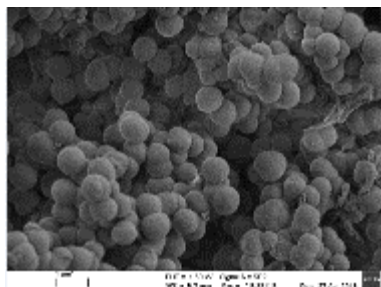
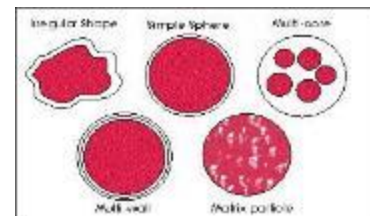
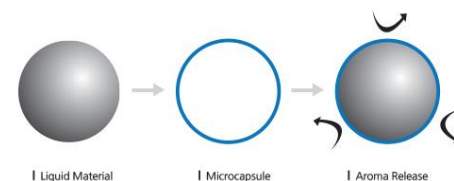
✓ **Protection of textile material against photo-damage**

Formaldehyde removal from the air by photocatalytic curtain



Mikroencapsulation for textile finishing

- Enabling encapsulation of non-polar substances and their application by water-based systems
- Stabilization of volatile compounds
- Slow release of active substances (movement, friction)
- Uniform long-term effect by large textile surface (contact with skin)
- Protection of functional substances (core) against external impacts (oxidation, temperature,..)

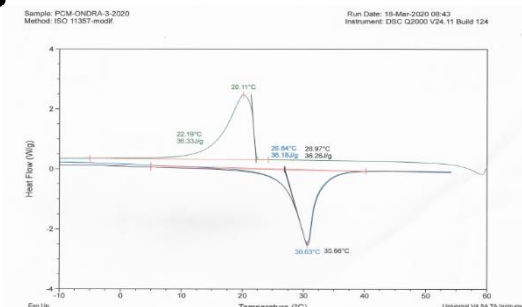


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SMARTTHERM

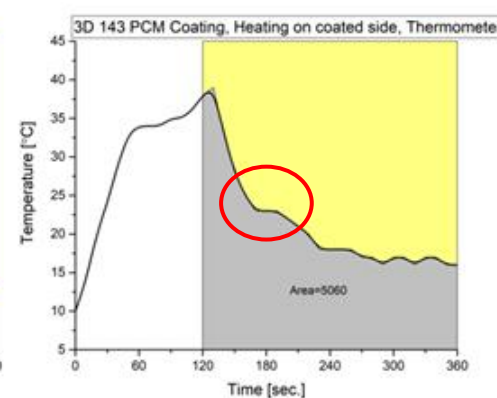
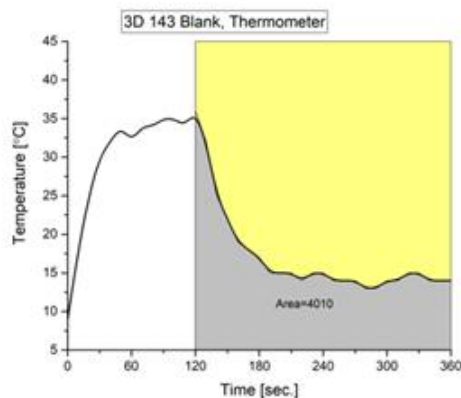
Intelligent thermoregulation based on encapsulated PCMs

- Application of PCM on textiles by back coating
- Thermal transport evaluation – thermoregulation effect



Sample code	T_{om} (°C)	T_{pm} (°C)	T_{em} (°C)	ΔH_m (J/g)	T_{oc} (°C)	T_{pc} (°C)	T_{ec} (°C)	ΔH_c (J/g)	ΔT (°C)
VS PCM 1	25.35	31.12	35.6	7.75	26.23	25.22	22.09	8.19	5.9
VS PCM 2	25.62	33.47	36.13	7.3	27.1	24.85	21.37	7.24	8.62
VS PCM 3	25.33	33.45	35.58	7.15	26.67	24.89	21.23	8.14	8.56

T_{pm} and T_{pc} : the melting peak temperature and the solidifying peak temperature; ΔH_m and ΔH_c : the melting enthalpy and solidifying enthalpy; ΔT : supercooling degree ($\Delta T = T_{pm} - T_{pc}$)



Polymerní mikročástice: Nařízení Komise (EU) 2023/2055/EU: zákaz od 17. 10. 2023
- zákaz posunut pro vonné látky na 17.10.2029, biocidy 17.10. 2031

SMARTTHERM

Intelligent thermoregulation based on encapsulated PCMs



PCM/VSS yarns – functional underwear



Hi-vis

DWOR

FR/antistat



PPE - PCM coated
zones

3D thermoinsulationg
/termoregulating casing
(PCM inside)





Development of a novel finishing of textile surfaces with active ingredients of graviola plant extract



Annonaceous bioactive phytochemicals



- Anti-inflammatory
- Antioxidant
- Immunosuppression
- Combination with Aloe oil extract – skin care



siloxane microcapsules



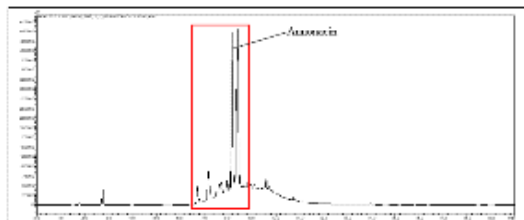
- Plant extraction
- TAA preparation
- Application on textiles/garments



Skleněný poloprazbovní reaktor - extrakce gravioly (COC)



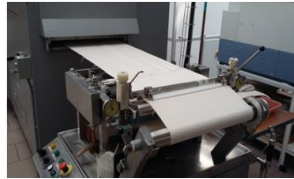
Acetogenines content– HPLC analysis



Polymerní mikročástice: Nařízení Komise (EU) 2023/2055/EU: zákaz od 17. 10. 2023
- zákaz posunut pro vonné látky na 17.10.2029, biocidy 17.10. 2031

Water-based air-knife coatings

- Watertight
- Flameproof
- Thermoreflective
- Anti-shift

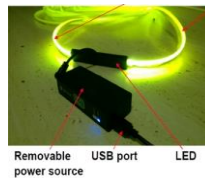
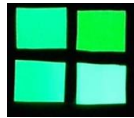


▪ ALUTEX Aluminium Coating

- Thermoreflective
- Functional additives (expandable for increased thermionsulation)



- **Phosphorescence light emitting layers**
 - Combination with optical fibers (TU Liberec, SINTEX)
 - LED service life prolongation



- **Paramagnetic coating**
 - Water-based paramagnetic layers
 - Customised in form of stickers
 - Simple tool for (robotized IND. 4.0) applications



- **PCM**
 - Thermoregulation back coating

▪ Sol-gel modified additives for water-based coatings: sol HPMC AD 30

- Polysaccharide-based layers
- Sol-gel modified colloids
- Crosslinking for washpermanency



PolyEnvi21

National Centre of Competence - Polymer Materials and Technologies for the 21st Century

- 
- Circular economy in production and processing of polymer materials: design for recycling, new (bio)polymers, waste upcycling, sustainability
 - **Interdisciplinary approach:**
Chemical industry * Automotive * Textile industry * Construction

SubProjects:

- **Marking of polymers for digitized waste sorting**
- **Removal of additives from plastic products by solvents**
- **Functional polyurethane polymers**
- **Enhancement of polymer materials by fractionization**

VSB TECHNICAL
UNIVERSITY
OF OSTRAVA

inoTEX®

Plastics
Cluster

UNIVERSITY
OF PARDUBICE

Ario®
Národní centrum kompetence

COC

AUTOKLASTR

ASSOCIATION
OF SCHP ČR
ASSOCIATION
OF CHEMICAL INDUSTRY
OF THE CZECH REPUBLIC

Palacký University
Olomouc

Zodpa

Continental
The Future is Motion

NANOProgress

synpo

Tomas Bata University

Ethanol Energy a.s.

S

simple engineering s.r.o.

UNIVERSITA J. E. PURKYNĚ V ÚSTÍ NAD LABEM

BRNO
UNIVERSITY
OF TECHNOLOGY

Fortemix

FORVIA

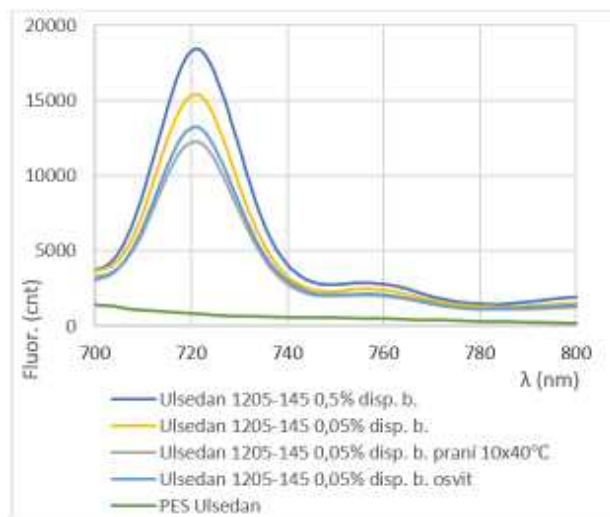
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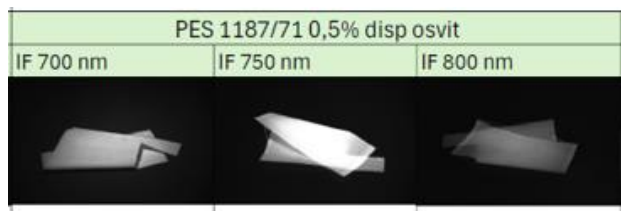
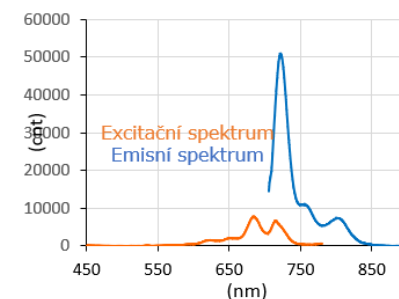
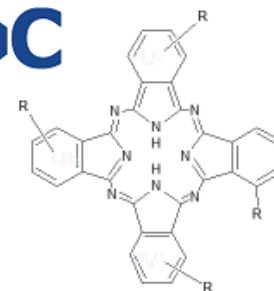
UNIVERSITY OF
CHEMISTRY AND TECHNOLOGY
PRAGUE

Organic markers for marking of plastics – synthetic fibres

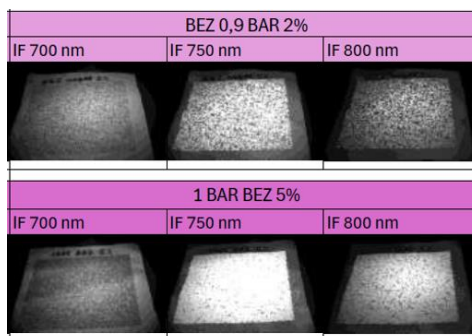
- Fluorescence 700-800 nm (NIR)
- Simple and quick identification
- Low concentrations
- No visual change
- Marking of recyclates



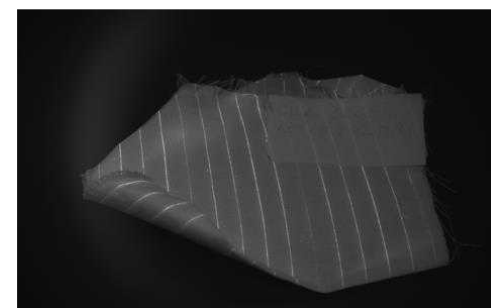
COC



PES – application of markers by disperse dyeing process

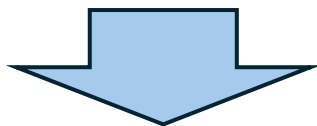


PES – marking by print (inkjet Chromojet)



Marked PES yard in a bledn fabric Co/PES

- Quality change of polymers in dependence on recycling cycles number
- UTB: addition of chain extenders and antioxidants (TGA, DSC,...)



Determination of recycling cycles no. in terms of usability for textile applications





Replacement of conventional fibres – mainly fossile-based synthetics from uncertain sources

Textiles from renewable resouces * Bio-fibrous materials * Fibres for recyclates

Recycled and regenerated fibres and blends

Comparison of mech-phys. Parameters, processing and functionalization



- SINTEX – woven and knotted constructions, ready-made products

- INOTEX – processability with commin technoloiges:
 - blended constructuions: conventional/r-fibres
 - finishing optimisation – dyeing and processing

	EMC 1010 VS/Ly	JC 1155 EcoVero/Ly	JC 1156 REFIBRA/Ly	JC 924 len/VSi 30/70	JS 154 EcoVero/PES 50/50/Ly	FSC 360 REFIBRA/PES s 50/50
Žlutá 0,5%						
Žlutá 1%						
Žlutá 2%						
Červená 0,5%						
Červená 1%						
Červená 2%						
Modrá 0,5%						
Modrá 1%						
Modrá 2%						

- PES, rPES (filament, stapl – from different producers
– Aerosilver, Thermocool, EcoMade Coolmax, Super-White,...)

- Cell: VSs Lenzing (standard, EcoVero, REFIBRA – content of cotton),
VSs Kelheim (DANUFIL Optical white and DANUFIL DEEP DYE- in-mass cationized fibre

- Blends rPES/VSs, rPES/Co, linen/VSs

Tržní uplatnitelnost	Zátěžné pleteniny pro konfekční zpracování oděvních výrobků (pracovní a ochranné oblečení, sport a volný čas)	
MUFCIRC 01/2022	MUFCIRC 02/2022	MUFCIRC 03/2022

inoTEX®



Danufil® F Optical White X Danufil® Deep Dye (cationic viscose fibre)

Dyeability with reactive dyes

Satin 5/1, weft: Danufil® F Optical White

	Dyeing without electrolyte	
	warp: Danufil® F Optical White	warp: Danufil® Deep Dye
face		
back		

	Dyeing with electrolyte	
	warp: Danufil® F Optical White	warp: Danufil® Deep Dye
face		
back		

Satin 5/1, weft: Danufil® Deep Dye

	Dyeing without electrolyte	
	warp: Danufil® F Optical White	warp: Danufil® Deep Dye
face		
back		

	Dyeing with electrolyte	
	warp: Danufil® F Optical White	warp: Danufil® Deep Dye
face		
back		

Biolutions™

Řada produktů TANATEX na bio-bázi



- **na bázi Bio** (použité materiály nekonkurují produkci potravin)
- **Vegan** (bez živočišných materiálů)

MESITOL® Bio-Fix

Bio a vegan dokončování pro PAD a směsi

neobsahuje Bisphenol S, Bisphenol F, fenol a formaldehyd,
splňuje GRS a bluesign® USDA certifikováno - získal označení BioPreferred

BAYGARD® LTR 01

F-free hydrofobační prostředek pro celulózu a směsi

na bázi bio (použité materiály nekonkurují potravinářské produkci) velmi dobrý
trvalý efekt USDA certifikováno – získal označení BioPreferred výrobek

BAYPROTECT® Bio-CL

Přípravek pro ochranu PA plavkovin a koberců vůči chlóru

obsah biosložky 87%, Prevence poškození roztoky chlornanu sodného,
ochrana proti špinění a silně oxidativním přípravkům

TANEDE® ZWD

Redukční přípravek bez obsahu síry pro alkalické redukční čištění disperzních vybarvení

obsah biosložky: 85%, redukční čištění vybarvení a tisku na PES a PES/cell,
redukční bělení PAC/Ba, vlny, PA a PA/elastan. Velmi účinný pro čištění aparátů

TANAFINISH Bio-DRY

Bioprodukt pro řízený transport vlhkosti

Obsah biosložky 87%, vynikající efekt na synt. materiálech, stabilita 30x praní

EDOLAN® Bio

Řada pojiv na bázi Bio-polyuretanu a akrylátu

30–70 % bio-složky, pro základní a povrchový zátěr, různá tvrdost

TANAJET™ Bio-Switch

Náhrada močoviny pro aplikaci v reaktivním a kyselém tisku

PERSOFTAL BK conc

Aviváž pro celulóзовé materiály a jejich směsi

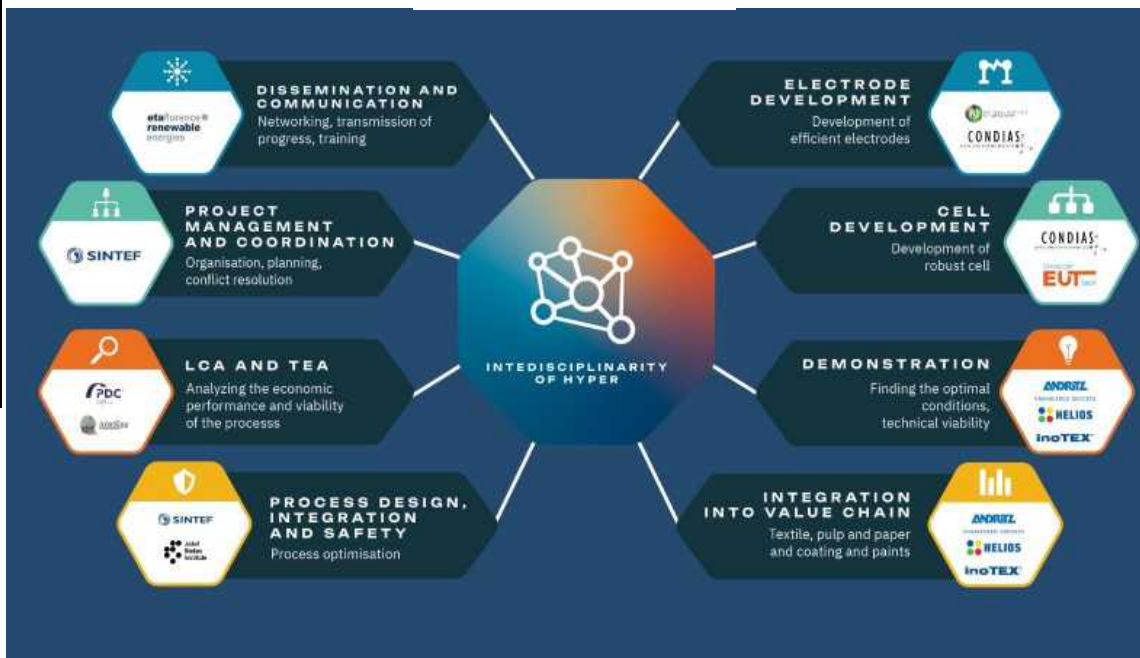
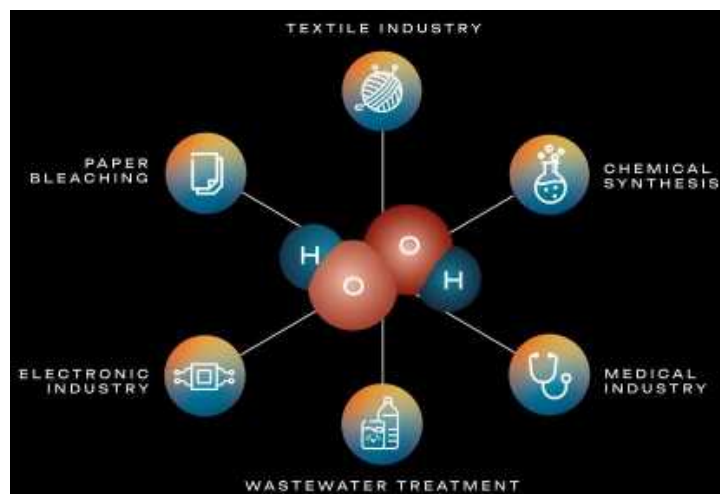
73% bio.based ester-quat



Call: **HORIZON-CL4-2022-TWIN-TRANSITION-01**
(CLIMATE NEUTRAL, CIRCULAR AND DIGITISED PRODUCTION 2022)



HYPER – An electrochemically produced oxidizer for modular, onsite generation of **HY**drogen **PER**oxide (from 1st Jan 2023, 48 months)



HORIZON-CL4-2022-RESILIENCE-01

Project number: 101091915

Project Full Title: SUSTAINABLE MEMBRANE DISTILLATION FOR INDUSTRIAL
WATER REUSE AND DECENTRALISED DESALINATION APPROACHING ZERO WASTE

Project Acronym: MELODIZER

Topic: HORIZON-HLTH-2021-DISEASE-04-04

Type of action: HORIZON-CL4-2022-RESILIENCE-01-14

Granting authority: European Health and Digital Executive Agency

Start date: 01 December 2022

Duration: 48 months

EU Contribution: 7.0007.470,74



INOTEX input:

Facilitation of textile finishing plants wastewater reuse by:

- **ECO-DYEING** – cationization TEXAMIN ECnew
Significant increase of dyebath yield/WW decoloration,
dyeing with re-dyes without salt
- **Enzymatic modification of PES TEXAZYM PES**
hydrophilicity, antistatic effect - elimination of alkalinity
- **Enzymatic pretreatment** of cotton and bast fibres TEXAZYM SC
NaOH replacement



Submitted and prepared projects

- **Enzymatic processing of hemp fibres for composites**
CORNET – EnTreHeat: **Enzymatic Surface Treatment** of Biogene **Heavy Tows** (bHT) for use in High-Performance Composites
(WNR, CLUTEX, FIBRE, STFI, INOTEX)
- **FIR heat reflection** – HUBORA – Multifunctional textiles reflecting the heat radiated by human body: (SINTEX, INOTEX, TUL)
- **Evaluation of AV effect** – ANTIVIR methodology of assessment of antiviral properties of textile materials (TZÚ, INOTEX, VÚVeL)
- **Bio-based finishing** systems and multifunctional effects BioCIRC (INOTEX, Intercolor, SINTEX)
- **Finishing and dyeing by spray technique** – a controlled minimum product/dyes application, double-side effects, process speed up, minimum content of chemicals and water (drying) – cutting of energy consumption
- **Reduction of microplastic pollution** (construction, processing, technological steps conjunction, new wastewater treatment technologies.)

Follow us to search new ways from idea to products

Innovation and technology transfer enterprise for textile finishing mills

- research, production and application of Textile Auxiliary Agents
- dyes and colour-matching services
- research and optimization of finishing processes
and new high added value products
- small-scale production of accessory machinery equipment
- small-volume textile finishing/coating
- textile testing and analytical lab, eco-services and consultancy
- participation in international research programmes
and EU expert groups

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innovation from the source ...

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