



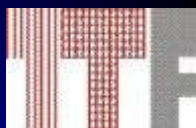
FP7-REGPOT-2008-1-229801: Unlocking the Croatian Textile Research Potentials **Project Results**

Project acronym: T – Pot
Project logo:



Dissemination Conference

16th February 2012



Croatian Chamber of Trades and Craft



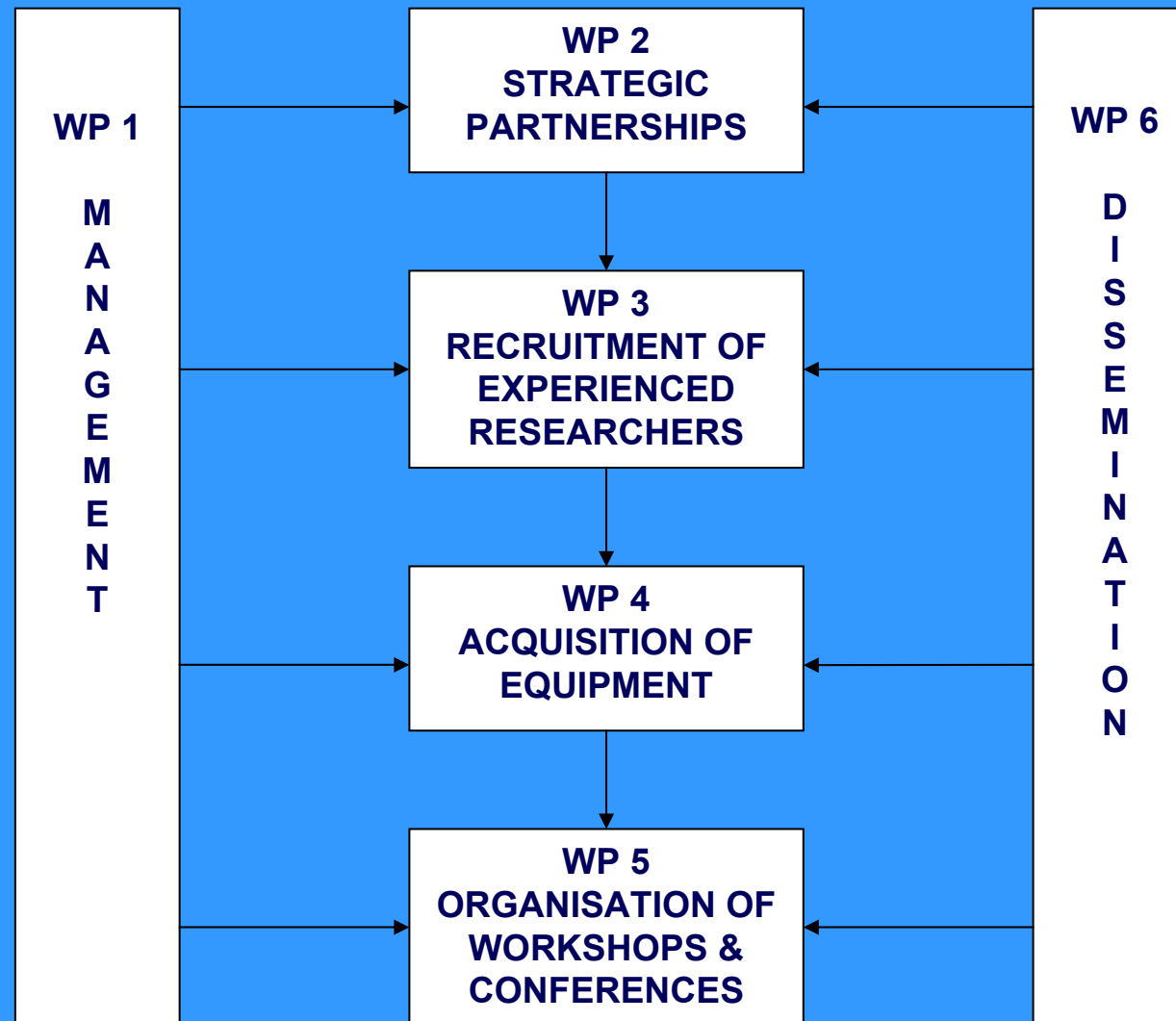
Overall objective of T-Pot

- To unlock and upgrade the research potential of the Faculty of Textile Technology (TTF), particularly its *Textile Science Research Centre*, enabling enhanced participation of Croatian textile organisations in research activities at the European level, in order to support the harmonisation and integration process of Croatian textile entities into the European Research Area.

Specific objectives of T-Pot

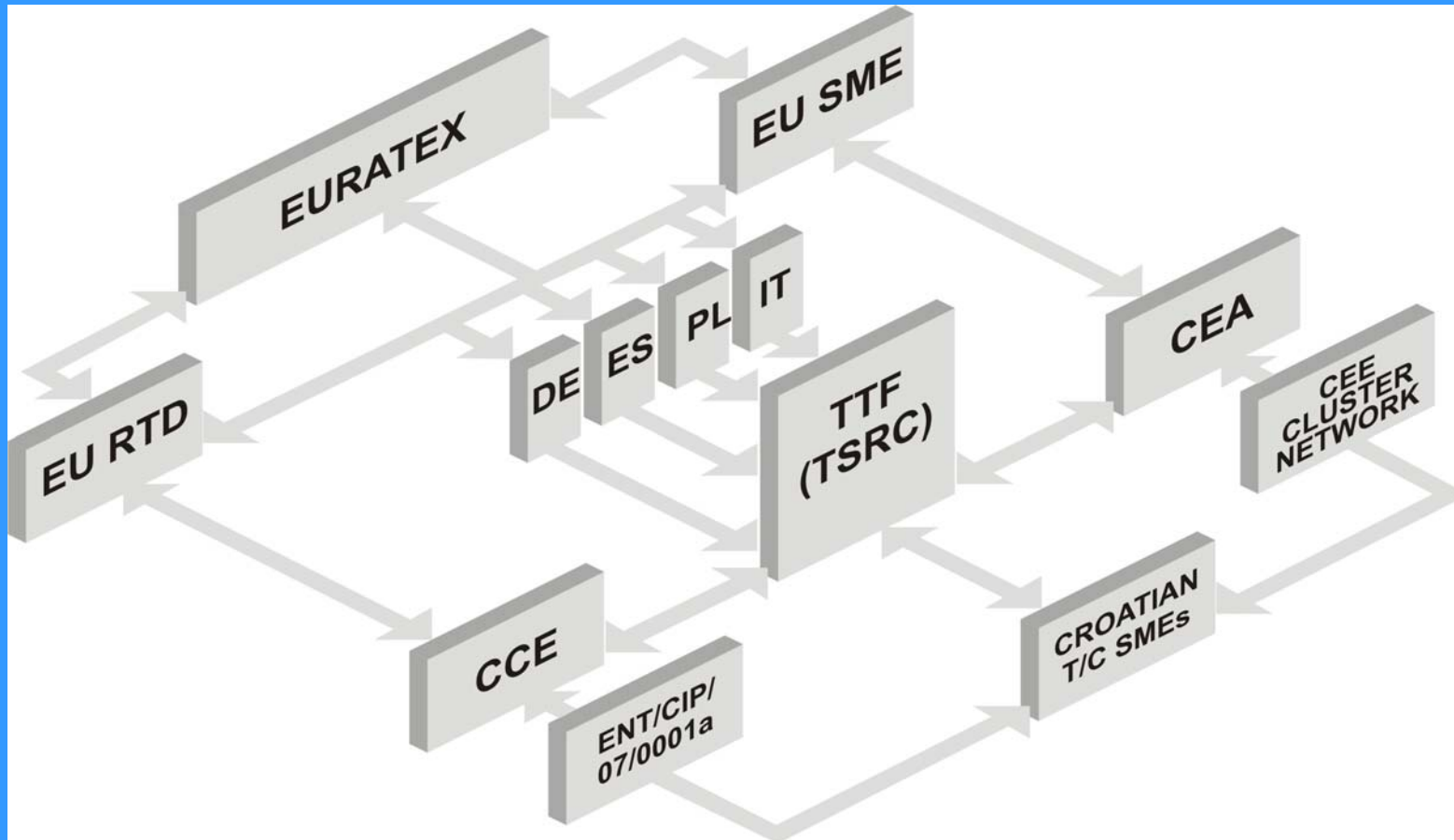
1. Reinforcement of S&T potential
2. Developing strategic partnerships with well established research groups
3. Supporting and mobilising the human & material resources
4. Facilitating communication between the centres having similar scientific interest
5. Disseminating scientific information and research results
6. Improving the responses to socio-economic needs of Croatia

Work Packages (WPs)





T-Pot Partnering institutions



WP2: Strategic partnerships

- **STFI**, Saxon Textile Research Centre (Chemnitz, Germany) - RTD



- **INFMP**, Institute for Natural Fibers and Medicinal Plants (Poznan, Poland) - RTD



- **Leitat**, Technological Center Leitat (Terrassa, Spain) - RTD




- **GZE**, Grado Zero Espace (Monte Lupo, Italy) - SME

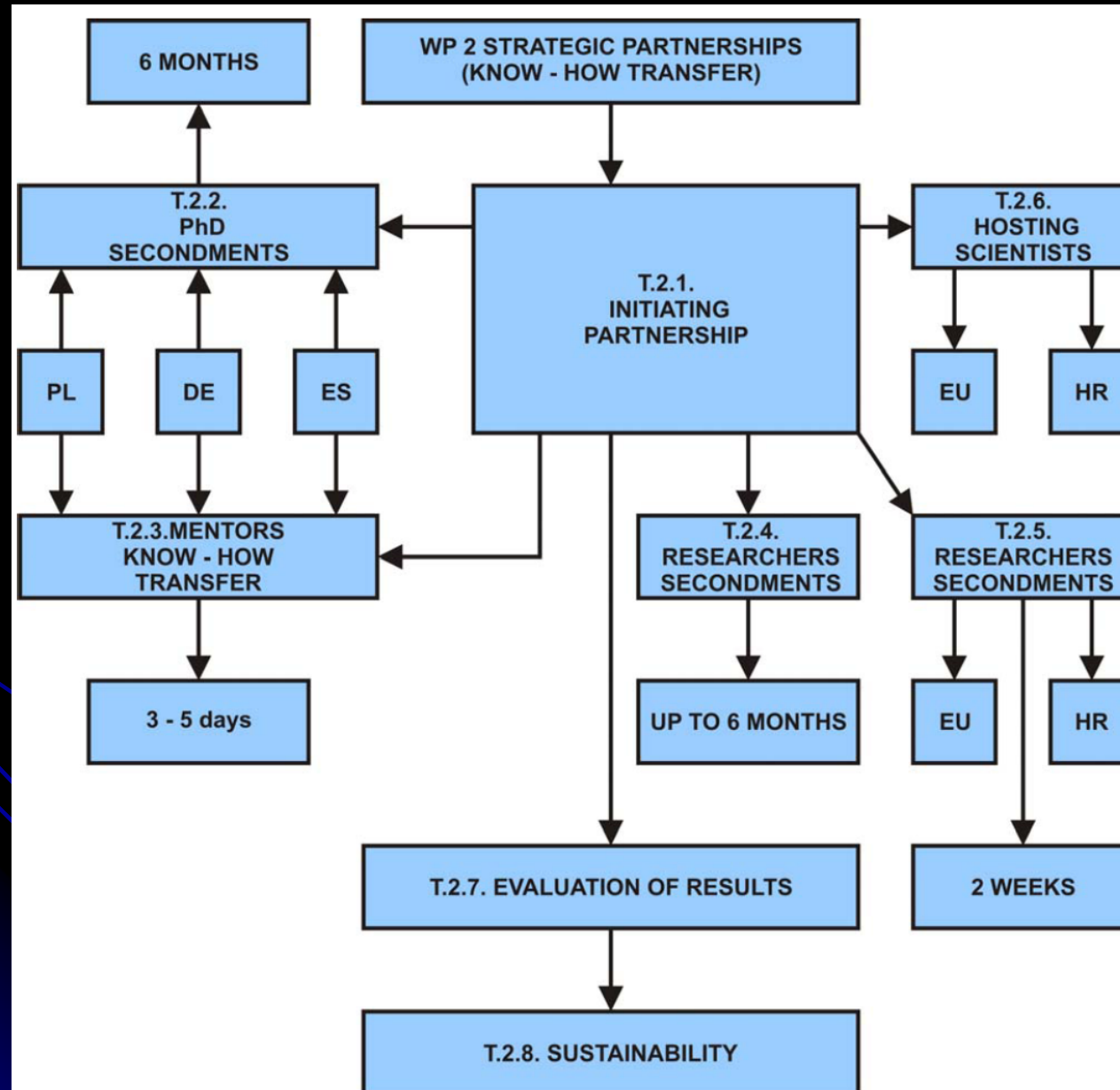


WP2: Strategic partnerships

Objectives of WP2:

- formation of strategic partnerships focused on capacity building through know-how transfer
 - sharing of research resources
 - **joint initiatives for developing services in support of business and innovation**
- 

WP2: Strategic partnerships



WP3: Recruitment of experienced researchers

Objectives of WP3:

- reinforcing human capacities by recruiting experienced researchers
- **knowledge of unique technologies transferred to TTF**
- setting up new research directions leading to competitive advantage
- raising the international competitiveness of TTF
- forming a strong regional centre

WP3: Recruitment of experienced researchers



T-Pot research team

- Employment procedure for stable position at TTF for 2 T-Pot researchers is in the process



Prof. Andrea Katović,
University of Calabria,
Department of Chemical
Engineering and Materials

Dissemination of obtained results in scientific papers

1.	Original scientific papers published in periodical cited by tertiary Current Content (CC) and secondary (SCI and Sci-Expanded) publications
1.1.	D. Katović, S. Flinčec Grgac, S. Bischof Vukušić, A. Katović: Formaldehyde Free Binding System for Flame Retardant Finishing of Cotton Fabrics, <i>Fibres & Textiles in Eastern Europe</i> 20 1(90) (2012) 94-98.
1.2	D. Katović, A. Katović , A. Antonović: Extraction Methods of Spanish Broom (<i>Spartium Junceum</i> L.), <i>Drvena Industrija</i> , 62 (4) (2011) 255-261.
1.3.	D. Katović, A. Katović , Marija Krnčević: Spanish Broom (<i>Spartium junceum</i> L.) - History and Perspective, <i>Journal of Natural Fibers</i> 8 (2) (2011) 81-98.
1.4.	Z. Kovačević, M. Krnčević, A. Katović , D. Katović: Brnistra – zaboravljena tekstilna sirovina, <i>Tekstil</i> 59 (9) (2010) 410-42.
1.5	D. Katović, A. Katović, M. Krnčević: Spanish Broom (<i>Spartium Junceum</i> L.), <i>Annual 2010 of the Croatian Academy of Engineering</i> ISSN 1332-3482, in press
1.6	S. Bischof Vukušić, S. Flinčec Grgac, D. Katović; A. Katović : SEM Characterisation of the Cellulose Material treated with Polycarboxylic Acid and Zeolite Nanoparticles, <i>Materials Science Forum</i> Vol. 700 (2012); 203-206

WP4 Acquisition and upgrade of equipment

Objectives of WP4:

- upgrading of research equipment for in-depth scientific investigations
- purchase and installation of equipment
- education of personnel in use of equipment
- creating flexible scientific research laboratories with modern equipment where groups of researches can work on specific projects
- **create conditions for cooperation with industry and joint projects**

WP4 Acquisition and upgrade of equipment

Textile Science Research Laboratory



***FTIR spectrometer,
TG-IR interface
and TGA
(Perkin Elmer)***

SEM Laboratory



***Field Emission Scanning
Electron Microscopy,
Myra II LMU (Tescan)
EDX detector (Bruker)***

WP5 Organisation of workshops & conferences

LEITAT (ES) 17-19.06.09	STFI (DE) 02-05.12.09	INFMP (PL) 5 mj. 2010
Innovative smart materials New surface treatments Coating & Laminating Ecodesign	Innovation in technical textiles area Recycling of textiles Life Cycle Analysis Quality Management	CELLUBAST-Center of excellence for natural bast fibers and materials Multifunctional eco-friendly textiles of new generation New recycling methods of textile waste

WP5 Workshops held in Croatia

The role of innovation in textile & ICT sector (Septembar 2009 - CCE)

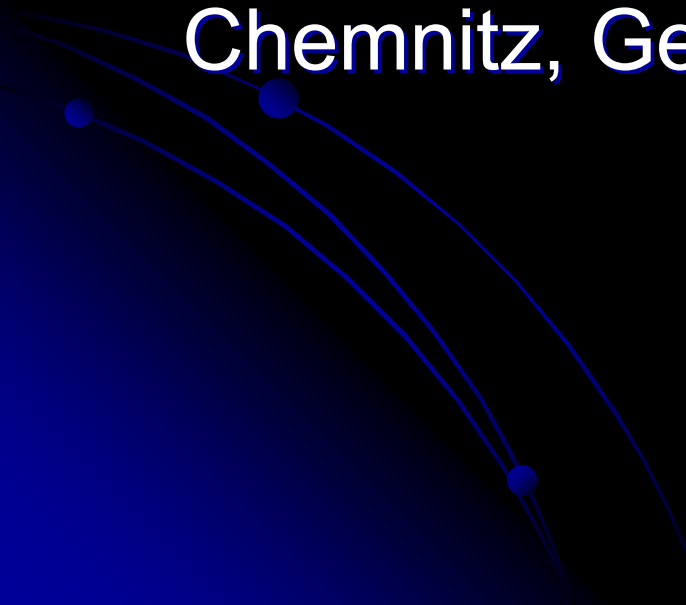
- Innovation and competitiveness
- How to innovate in textile sector?
- Innovation and IPR
- Tools for continuous monitoring

Innovation Management

(Septembar 2010 - CCTC)

- Mapping of Croatian innovative potential
- The role and significance of research results
- From science to shares
- IMP³rove methodology of innovation potential monitoring

WP5 Organisation of conferences

- Participation of project members at:
 - Textile Science & Economy 2010, Zagreb
 - ITC&DC 2010, Dubrovnik
 - Recycling for textiles, 1-2.12.2009.
Chemnitz, Germany
- 

WP6 Dissemination

T.6.1 Textile Science Research Portal: <http://www.ts-rc.eu>

T.6.2 T-Pot site: <http://www.t-pot.eu>

T.6.3 STEP-site: <http://www.ttf.unizg.hr/step>

T.6.4 Postgraduate seminars ⇒ Award for the best student scientific or art research in 2011

T.6.5 Textile forums ⇒ Cotton incorporated (USA), DuPont

T.6.6 Presentation ⇒ TV, radio, papers

T.6.7 Publications ⇒ Flyers, Book of Proceedings of Textile Science & Economy Symposium 2010, TTF monograph, Books:

- Young Scientists in the Protective Textiles Research
- Functional Protective Textiles
- T-Pot Monograph

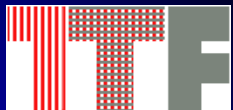


TEXTILE SCIENCE RESEARCH CENTRE

Established in October 2008 at University of Zagreb Faculty of Textile Technology.

Main goals of TSRC:

- **Coordination and continuous development of scientific research**
- **Cooperation with other international and national scientific institutions & industry**



⇒ *Long term goals of TSRC:*

- ⇒ Increase of Croatian scientific research visibility in:
 - ⇒ textile
 - ⇒ clothing
 - ⇒ related areas
- ⇒ Support for development of SMEs.



TSRC follows the activities of:

⇒ European Technology Platform for the Future of Textiles and Clothing



***TSRC follows the activities
of:***

⇒ Lead Market Initiative (LMI).



***Protective textiles are chosen as one of the 6 most
profitable markets in EU***



Textile Science Research Centre (TSRC) Laboratories, funded by the T-Pot project

LABORATORIJ ZA ISPITIVANJE GORIVOSTI MATERIJALA



Microkalorimetrom za sagorjevanje (MCC) mjera se razlika svojstve gorenja materijala. Uzorcima od svega nekoliko miligrama mjeri se temperatura paljenja, isparjivosti, vijekost otpuštanje topline, otpornost na gorenje i dr.



MCC (BOMBAKO)

LOI (THERCO)

LOI uređaj za mjerenje granličnog indeksa krala točno određuje relativnu zapaljivost materijala mjerenjem minimalne koncentracije kisika potrebna za izgaranje. Testirani uzorak se pali u predzračnoj kontroliranoj atmosferi dušika i kisika.



APARATURA ZA IZVJESNJE
GORNOSTI TEKSTILNIH
MATERIJALA POG RUTEM
OD 0% DO 30%



TSRC USLUGE

Znanstveno istraživački centar za tekstil (Textile Science Research Centre) nudi kao svoje usluge znanstveno-istraživačku opremu i ljudske kapacitete.

Obvorni smo za suradnju sa:
- znanstveno-istraživačkim institucijama
- gospodarstvom.

Nudimo suradnju putem:
- znanstveno-istraživačkog rada
- znanstveno-istraživačkih projekata
HR II EU.

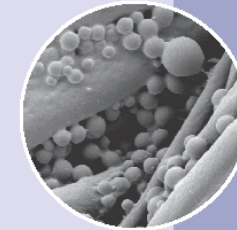
TSRC je sufinanciran sredstvima projekta FP7-REGPOT-2008-1-228801-T-Pot, financiranog od Europske komisije (EC).

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LABORATORIJSKA OPREMA



Science Research Centre
www.ts-rc.eu

Zavod za tekstilno-kemijsku tehnologiju i ekologiju
Tekstilno-tehnološki fakultet
Sveučilište u Zagrebu
Sveučilišna u Zagrebu
Sveučilišna 16/9
HR-10000 Zagreb

ZNANSTVENO-ISTRAŽIVAČKI CENTAR ZA TEKSTIL (TSRC)

SEM LABORATORIJ (SKENIRAJUĆA ELEKTRONSKA MIKROSKOPIJA)

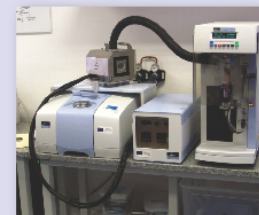


FE-SEM BEZVAKUUM (TESCAN
BOX DETECTOR (KALINA))

SCANSOP MINI NARVAŠKI
(QUORUM TECHNOLOGIES)

Starije i najelektronski mikroskop SEM omogućuje detaljnu analizu uzoraka uz prilično povećanje do 100.000 puta. Povezan je EDX detektorom za elementarnu kemijsku analizu (Bruker AXS Microanalysis). Mikroskop je vođen računarskim programom koji omogućuje analizu slika sa kvantitativnom obradom podataka. Kvala je za ovu vrstu mikroskopije nužan preduvjet elektroničnost promatranog uzorka, naveden je i napravljen na bez zaba, paljenja i ugalja. SEM mikroskopije omogućuje proučavanje morfologije uzoraka.

FIZIKALNO-KEMIJSKI LABORATORIJ ZA TERMIČKE ANALIZE I FT-IR SPEKTROSKOPIJU



SPSOTRUM 101 FT-IR
SPEKTROMETAR SA TAMA
BUČIČEM (PERKIN ELMER)

PYRIS 1 TGA
(PERKIN ELMER)

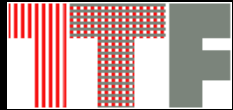


DSC 1000 (PERKIN ELMER)

Uređaj za termogravimetrijsku analizu TGA mjeri gubitak mase uzorka tijekom zagrijavanja u određenom temperaturnom rasponu (25°C - 950°C) i određenoj atmosferi (dušik, zrak, kiselj). Ovom metodom moguće je odrediti točku isparavanja, sublimacije, degradacije, odnosno dekompozicije, kao i nepovratnu kvantitativnu analizu uzorka. Uočilo je uređaj spojen TSRC sučinjen na FT-IR spektrometar moguće je analizirati i plinovite produkte nastale zagrijavanjem uzorka. FT-IR spektrometar služi za kvalitativnu, kvantitativnu i strukturu analizu materijala. Iz infracrvenog spektra mogu se dobiti podaci o kemijskoj prirodi i molekularnoj građi ispitivane tvari.

DSC uređaj mjeri promjenu toplinskog toka kao funkciju temperature ili vremena ispitivnog uzorka u odnosu na referentni. Usljed zagrijavanja ili hlađenja uzorka prate se endotermne ili egzotermne reakcije uslijed kojih dolazi do promjene stanja faze sa posebnim utvrđuje točke taljenja, kristalizacije, isparavanja, sublimacije, oksidacije, oksidativne degradacije, termičke dekompozicije i dr., a rezultati se mogu primijeniti za praćenje i razvoj novih polimernih materijala. Ova metoda koristi je za utvrđivanje čistoće uzorka, toplinskog kapaciteta i dr. DSC radi u inertnoj atmosferi dušika i u temperaturnom rasponu od -70°C do 900°C.

COOPERATION OF ACADEMY & INDUSTRY



=
NECESSARY

TSRC ACTIVITIES:

- Initiation of applied R&D for the benefit of Croatian SMEs
- Continuous know-how transfer towards the industry and increase of scientific excellence
- Contributing to the increase of the SMEs competitiveness on EU market, through development of innovative products, methods or service
- Regional leadership in particular sectors



TEXTILE SCIENCE RESEARCH CENTRE

PORTAL CONTENT:

- NEWS and breakthroughs in the textile sciences and textile economy (from Croatia and worldwide)
- DATABASE of textile subjects (SMEs) in Croatia and region
- DATABASE of R&D projects performed by TSRC partners
- DATABASE of scientific equipment
- TSRC services (R&D project development, consulting, scientific measurements & expertise)
- Free downloads (freeware and shareware software, manuals, documentation, books and pamphlets in electronic form)
- Forum for textile users, textile companies and all other people that are interested in portal
- Links to TSRC partnering institutions



<http://www.ts-rc.eu>





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