Polymeric Materials for Solar Technologies

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Research Profile: 4 major areas of technology orientation

Water
(supply, disposal)

Energy
(solar, wind, water)

Mobility
(ultra-light vehicles)

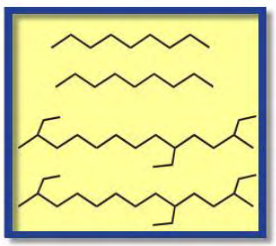
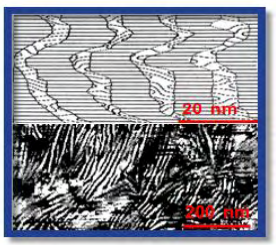
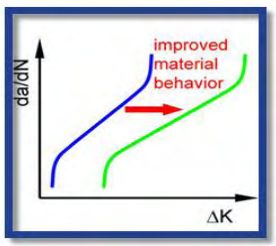
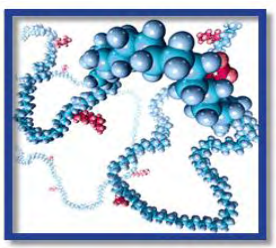
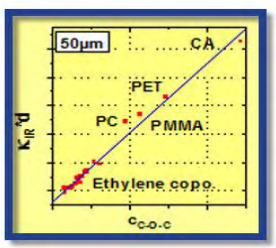
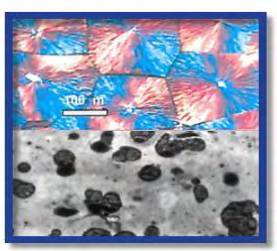
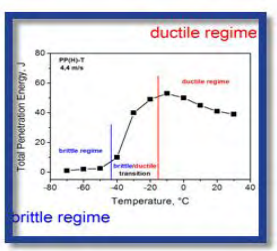
"Biogenic" Plastics
(renewable resource base)

The Millenium Development Goals (MDG) - United Nations, 2008

- **Water:** ~ 1 bill. people without access to clean and sufficient water
  ~ 2.5 bill. people without proper sanitation
- **Energy:** > 2 bill. people with insufficient access to energy

Research Profile: Aims and methodology

Scientific Approach: *msp*³-relationships
(material structure-property-processing-performance)

	Molecular structure	*Morphological structure*	*Material properties*	*Processing & Design*	*Aim: Service performance*
Polyolefin Pipes					
Solar collectors					
Ultra-light vehicles					

Focus of research

Approved Research Projects - Polymeric Materials for Solar Technologies

Funding program *Neue Energien 2020* (Climate and Energy Fund, FFG)

„Solar thermal Systems based on Polymeric Materials (SolPol-1/2)“

Part 1: Scientific and Methodological Aspects and Economical and Ecological Impact Assessment

Part 2: Development of Collectors and Plastics-Compounds

Duration: **07/2010 – 06/2013 (3 years)**

Budget *Part 1*: **€ 0,73 Mio. (approved)**

Budget *Part 2*: **€ 4,2 Mio. (approved)**

9 Scientific partners (4 JKU Institutes)

10 Company partners

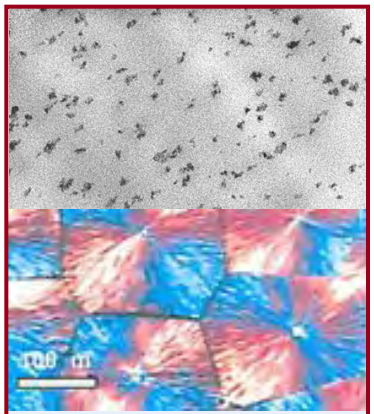
SolPol-1/2 – Content and Work Packages

WP-01: Performance Requirements

SolPol-1

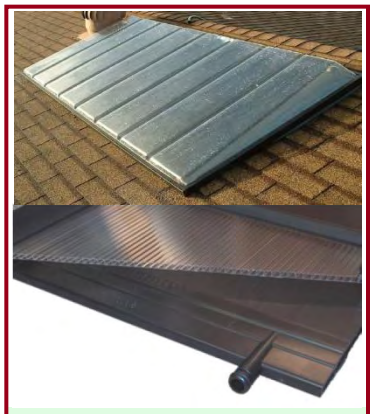
WP-02:
Test Methods

WP-03:
N/G Perspectives

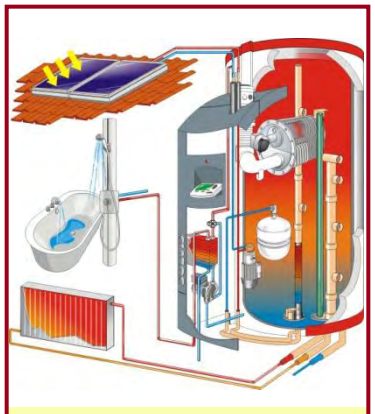


Materials

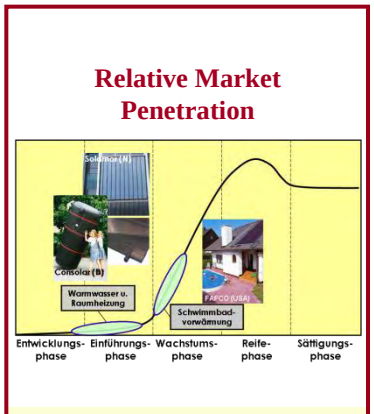
Processing Technologies



Subcomponents, Components



Solar-thermal System



Perspectives and Effects

AP-04:
Functional Compounds
AP-05:
Durable Compounds

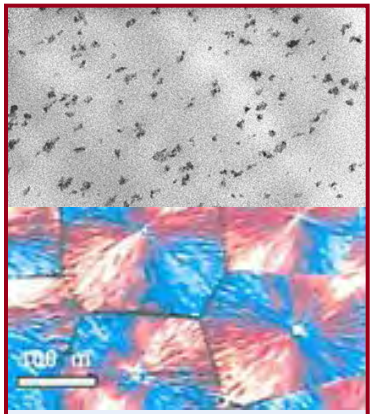
AP-01: OHC Collector
AP-02: Hybrid Collector
AP-03: Large-Area Film Collector
AP-06: ID Collector Concepts

SolPol-2

SolPol-1/2 – Partnership Structure

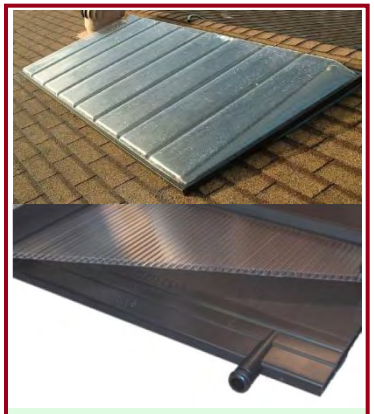
9 Scientific Partners

JKU-CTO **JKU-IAC** **JKU-ICP** **JKU-IPMT**	**JKU-IPIM**	AEE-INTEC JKU-IPIM JKU-IPMT **UFG-ID** UIBK-EGEE	**AEE-INTEC** **UIBK-EGEE**	AEE-INTEC JKU-IPMT **WIFO** UIBK-EGEE

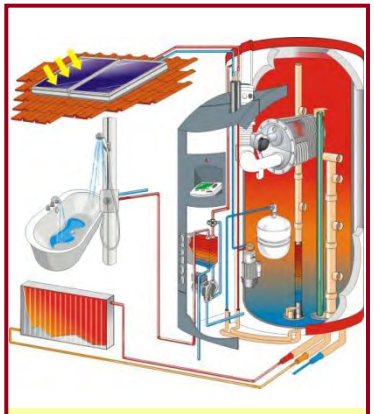


Materials, Semi-finished Prod.

Processing Technologies

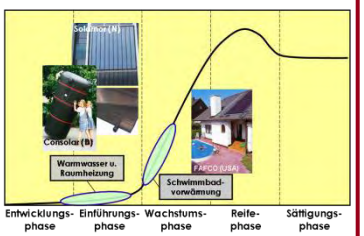


Subcomponents, Components



Solar-thermal System

Relative Market Penetration



Perspectives and Effects

10 Company Partners

AGRU **APC** **Borealis** **KE KELIT**	**AGRU** **ENGEL** **Greiner** **Lenzing Plastics** **Schöfer**	ENGEL Greiner Schöfer **Sunlumo** **SUN MASTER**

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Submitted Research Projects - Polymeric Materials for Solar Technologies

Funding program *Neue Energien 2020* (Climate and Energy Fund, FFG)

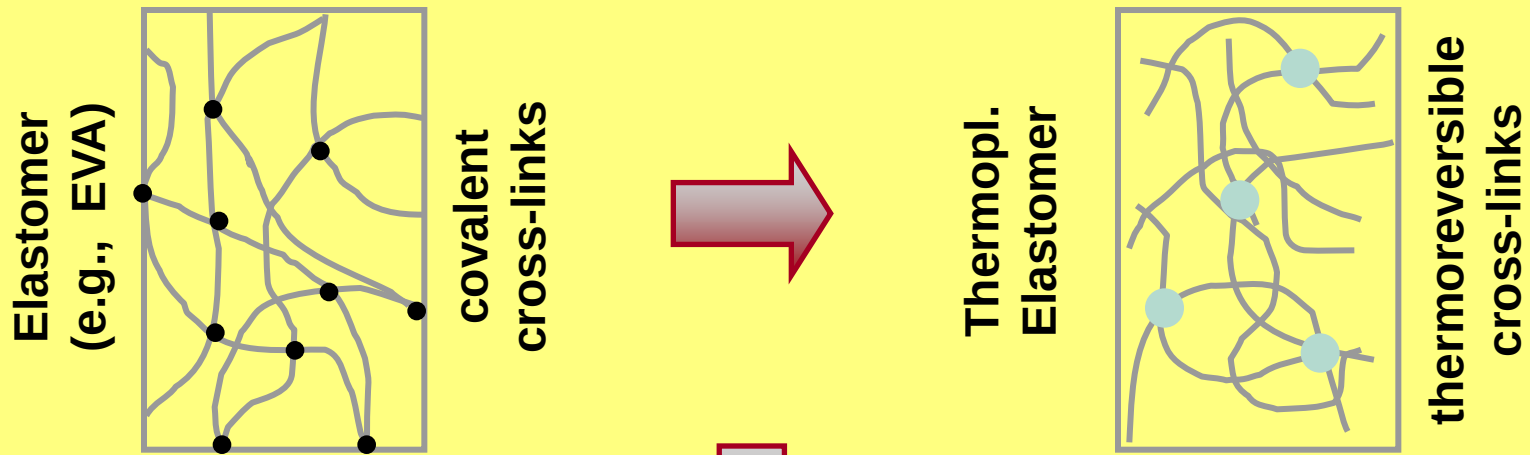
„Solar-electrical Systems based on Polymeric Materials: Novel Polymeric Encapsulation Materials for PV Modules (SolPol-3)“

3 Scientific partners (2 JKU Institutes)

7 Company partners

SolPol-3 – Main Objectives

Development of novel polymeric encapsulation materials



Improved production process

- shorter lamination cycle times
- continous production (roll to roll)
- improved performance