Łukasiewicz
Instytut Ciężkiej
Syntezy
Organicznej
BLACHOWNIA

Łukasiewicz Research Network - Institute of Heavy Organic Synthesis ”Blachownia”

Katarzyna Zielińska PhD, Eng

katarzyna.zielinska@icso.lukasiewicz.gov.pl

+48 665 661 145

Łukasiewicz – ICSO ”Blachownia” research areas

Chemical Technologies, Polymers and Biopolymers

- literature and patent studies
- development of chemical technologies
- improving of the existing chemical technologies
- optimization of raw materials and energy consumption rates
- engineering and technical services – development of design documentation and scaling of processes from laboratory to technical and production level

- technologies for the production and modification of synthetic resins: epoxy, phenolic, lignin resins, polyurethanes, polycarbonates
- compounding and processing of thermoplastic polymers and biopolymers
- development of composite materials
- biocoatings for paper packaging
- crosslinking agents for synthetic resins

Functional additives for polymers

- plasticizers
- stabilizers
- surfactants
- antioxidants
- non-halogen flame retardants

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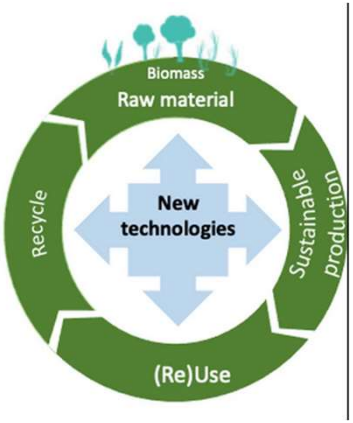
Bioeconomy & Biotechnology, Recycling processes

- development of renewable raw-materials processing technologies for the production of liquid biofuels components
- processing of fatty substances as a base compounds for further processing
- biotechnological processes: enzymatic catalysis and extraction
- plant oils-based bio-additives for polymer materials: plasticizers, compatibilizers, flame retardants



- chemical and mechanical recycling of plastic wastes according to Circular Economy rules
- industrial waste water treatment, removing of effluents
- management of sludge from sewage treatment
- implementation of the Packaging and Packaging Waste Regulations (PPWR) and Single Use Plastics (SUP) Directive

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Catalytic and High Pressure processes

- selection of catalysts for various chemical processes
- testing of catalysts efficiency and durability in fixed-bed or suspension reactors, from laboratory to semi-pilot scale
- production and application of new-generation heterogeneous catalysts - ionic liquids, organic-inorganic catalysts and ion-exchange resins

Hydrogen & CO_2

- high-pressure chemical syntheses and with the use of process gases,
- technologies for the hydrogen processing up to 300 bars
- next generation fuels based on hydrogen and CO_2
- etoxylation and propoxylation technologies
- CO_2 conversion and utilization processess

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Analytical services

- analytical services according to DPL, OECD, SANCO and IKW standards
- analytical control of the chemical processes – chromatography, spectroscopy, spectrophotometry, fluorescent techniques, thermal analysis
- determination of pesticides, PFAS and SVHC substances
- determination of the polymers properties - mechanical, rheological and thermal analysis