Research Group n. 3

UNIVERSITA' DEGLI STUDI DI NAPOLI FEDERICO II

Catalysis for Biorefinery

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The Research group of Catalysis for Industrial Chemistry has competencies in catalysis, kinetics and chemical reactor engineering . In the sector of catalysis, acid, basic and redox catalysts both homogeneous and heterogeneous have been studied. For what concern these catalysts the Group studied: the preparation, characterisation and performance of the catalysts in reactions of industrial interest.
Currently, the main theme of research is the study of heterogeneous and homogeneous catalysts for the biorefinery. In particular the following processes are studying: biodiesel production, , soybean oil epoxidation, polymers from renewable raw materials.

Key words: Kinetics, Catalysis, Chemical reactor engineering, Biorefinery

Pubblications:

Turco, R.; Vitiello, R.; Russo, V.; Tesser, R.; Santacesaria, E.; Di Serio, M.; Selective epoxidation of soybean oil with performic acid catalyzed by acidic ionic exchange resins,Green Processing and Synthesis,2,5,427-434,2013

Russo, V.; Tesser, R.; Santacesaria, E.; Di Serio, M.; Kinetics of propene oxide production via hydrogen peroxide with TS-1,Industrial & Engineering Chemistry Research,53,15,6274-6287,2014

Vitiello, R; Russo, V; Turco, R; Tesser, R; Di Serio, M; Santacesaria, E; Glycerol chlorination in a gas-liquid semibatch reactor: New catalysts for chlorohydrin production, Chinese Journal of Catalysis,35,5,663-669,2014

Benessere, V.; Cucciolito, M. E.; Dal Poggetto, G.; Di Serio, M.; Granados, M. L.; Ruffo, F.; Vitagliano, A.; Vitiello, R.; Strategies for immobilizing homogeneous zinc catalysts in biodiesel production,Catalysis Communications,56,81-85,2014

Russo, V; Tesser, R; Trifuoggi, M; Giugni, M; Di Serio, M; A dynamic intraparticle model for fluid-solid adsorption kinetics, Computers & Chemical Engineering,74,66-74,2015

SUPPLEMENTARY MATERIAL

Position of the components of the Research Groups

Name	Surname	Position *	Affiliation
Martino	Di Serio	PA	Univ. Federico II
Riccardo	Tesser	PA	Univ. Federico II
Rosa	Turco	PoD	Univ. Federico II
Vincenzo	Russo	PoD	Univ. Federico II
Rosa	Vitiello	PhD	Univ. Federico II

*: PO = Full professor; PA = Associate professor; RU = University researcher; CO = contract; PoD = Postdoctoral fellows; RC = CNR staff or other Institutions Research; T = technician, VR = visiting researcher, S = student

Equipment

Type	Producer	Year of acquisition
FT-IR (DRIFT) AVATAR 360	NICOLET	1999
UV/VIS Spect. (DRIFT) V-550	JASCO	1999
TPDRO	THERMO	2001
GC	PERKIN-ELMER	2010
HPLC – UV - LS	PERKIN-ELMER	2010

Technical skills

- Catalysts preparation;
- Catalysts characterization;
- Catalytic tests in continuous and batch reactors;
- Kinetics and modeling;