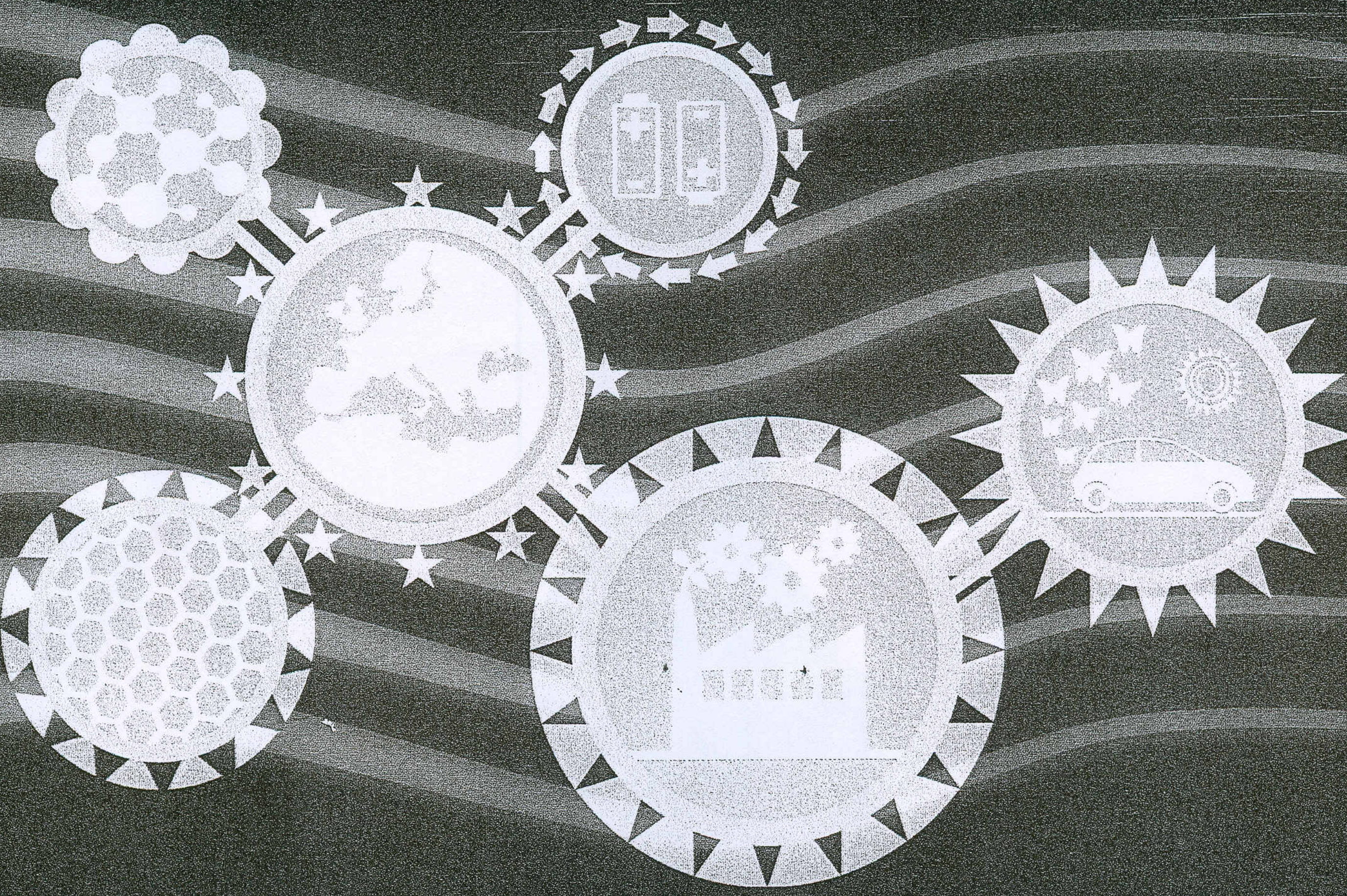
EuropaCat IX

Catalysis for a Sustainable World



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ABSTRACTS

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P2-36
Behaviour of the different TS-1 catalysts in the benzene to phenol oxidation

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The selective oxidation of organic substrates by H_2O_2 in the presence of titanium silicalite-1 (TS-1) based catalyst is an area with high potentiality for the development of new environmentally friendly technologies. In this work a series of TS-1 samples was synthesized under different conditions in order to investigate the different behaviour on the catalytic benzene to phenol oxidation. The phenol selectivity remains over 90%. Some other products were formed in low amount like benzoquinone and cathecol, due to the further oxidation of phenol. Further investigation will concern the presence of Ti^{+4} in the catalyst calcined at lower temperature (450°C) and prepared with different titanium content. Moreover the role of specific surface, morphology and defect group will be analized

Keywords: Catalist, Phenol, Catalytic oxidation

P2-37
Laboratory reactor for studying gas-phase reactions of real-size industrial catalysts

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For studying real catalyst performance, industrial catalysts, e.g. of egg-shell type, have to be often tested under preservation of their original catalyst particle size. However, simulations of fixed-beds on laboratory scale need a rather large quantity of catalyst. That is why real-size industrial catalysts are seldom studied in research laboratories. The presented reactor allows to extremely reduce the amount of required catalyst while ensuring ideal displacement conditions. Validation of the presented reactor was carried out using acetoxylation of ethylene to vinyl acetate as test reaction with the consequence that the system allows high-precision differentiation of activity and selectivity even among comparable catalysts.

Keywords: laboratory test reactor, egg-shell-catalyst, acetoxylation

P2-38
Chiral salen complexes immobilized on organic resins as heterogeneous catalysts for the Strecker reaction

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Four new heterogeneous catalysts were synthesized by covalent attachment of Vanadium(V) and Aluminium(III) salen complexes to two solids supports, a Merrifield resin and a Jandajel resin bearing bromomethylene and hydroxyl groups on their surface, respectively. The solid catalysts were characterized by analytical and spectroscopic techniques and tested in a Strecker type reaction, the asymmetric addition of hydrogen cyanide (generated *in situ* from TMSCN) to *N*-benzyl benzylimine at -40 °C. In heterogeneous phase, high values of conversion and enantioselectivity (around 50 %) were obtained with the Vanadium(V) catalysts whereas with the Aluminium(III) catalysts those values were significantly lower.

Keywords: Salen complexes, organic resins, heterogeneous catalysts, Strecker reaction