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Patent-based technology life cycle analysis: The case of the application of nano-FAU and nano-ZSM-5 zeolites in petroleum industry

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Zeolites are porous aluminosilicates, which are very useful due to their unique features such as high surface area, porosity, ion exchange properties, etc. In recent years, nano-zeolites have been of interest among researchers, which has led to amplification in the number of papers as well as patents. One of the widely used methods to specify the level of a technology in the S-Curve is patent analysis. In this study patent analysis was applied in order to investigate some cases such as patent activity, active countries, main applicants, inventors and researchers, application domains etc. in nano-FAU and nano-ZSM-5 zeolites technologies. The procedure for patent analysis started with collecting the patents from the Internet, extracting the main CPC and IPC codes and finally applying the main Cooperative Patent Classification (CPC) codes and International Patent Classification (IPC) codes in valid patent databases. The results of analysis, which was extracted from valid databases, concluded that zeolite technology is in maturity stage of the scheme of integration for technological S-Curve and patent activities and patent registration in zeolite technology are in increasing trend. Furthermore, active countries, companies and researchers were determined. Finally the main domains in zeolite application were pointed out.

Biography

Saeed Soltanali holds a PhD from SUNY at Buffalo in 1978 and BS from Sharif University of Technology, Tehran, Iran. He is an Adjunct Professor in the Department of Chemical and Biomolecular Engineering at the University of Maryland (UMD) and has been a visiting Professor at UMD, MIT, RPI and SUNY. He has over 35 years of academic and executive experiences in Chemical Engineering, Energy and Environment including Climate Change. He has over 90 papers in international scientific peer reviewed journals and serving as a reviewer of several international journals. He has presented over 130 papers at national and international conferences. He is a distinguished Professor and the winner of several environmental awards and recognitions. He is a Nobel Laureate for Peace in 2007 for his contribution as a coordinating lead author of the special report on carbon capture and storage of the intergovernmental panel on climate change (IPCC).

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