

UniCat Colloquium

DR. MADAN BHASIN

Chief Scientific Advisor, MATRIC (Mid-Atlantic Technology, Research & Innovation Center), South Charleston, W.V, USA and Innovative Catalytic Solutions, LLC

Ethylene Oxide Catalyst and Process Innovations: A Successful Journey Towards a Sustainable Industrial Process

Ethylene oxide (and ethylene glycol) are very large volume, commodity chemicals and building blocks for a large numbers of other derived chemicals with annual production exceeding 50 Billion pounds per year. These commodity chemicals have been growing globally at the rate of 5-6%/year for the last 3-4 decades. Improving catalyst selectivity and hence reducing carbon dioxide emissions has been very intense competitive activity amongst the major competitors; Union Carbide/Dow Chemical, Shell/Criterion and Scientific Design for the last 50 years. The key catalyst inventions leading to innovations of successively improved generations of ethylene oxide catalysts from about 70% to 90%, over the last three/four decades, will be presented. In addition, the process evolutions from the old multi-reactors in series for air based and then the multiple parallel reactor oxygen based processes leading to the current designs of a single reactor to produce 500-1000 MM lbs/year in a single plant, will be presented. In addition, these innovations have resulted in a much simpler process design having lower capital & operating costs along with process simplicity and enhanced process safety. Most importantly, from sustainability standpoint, carbon dioxide emissions have been reduced enormously, from about 30% to 10%, even though the worldwide capacity has nearly doubled in the last 15 years. Importantly, even more reductions in carbon dioxide emissions and improvement in selectivity are possible in the coming years.

SAMIRA PARISHAN

UniCat and BIG-NSE

Latest Results about OCM

Dr. Bhasin is the inventor of OCM. In a seminar in 2014, he gave us valuable suggestions for our research. He thoroughly follows our publications and conference contributions. We would like to give him an up-date of our results and continue our fruitful discussion. Samira Parishan will present selected results of the whole OCM team of UniCat.

Friday, January 13, 2017 at 10:00 AM

TU Berlin, Institute of Chemistry
Straße des 17. Juni 124, 10623 Berlin
Building TC, Seminar Room TC 014

Prof. Dr. Schomäcker (TUB)

Organizer

Guests are cordially invited to attend!

Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - www.unicat.tu-berlin.de