Beaven Mandimutsira

Senior Researcher at Lyondell Chemical Company

Wynnewood, PA - Email me on Indeed: indeed.com/r/Beaven-Mandimutsira/397433c91da07e11

Experienced researcher with a wide breadth of knowledge: synthesis and evaluation of heterogeneous and homogeneous catalysts; Inorganic/organometallic chemistry; precious metal catalysts; batch to pilot testing of homogeneous catalysis systems. Proven independent work capability and adept at working in a team environment. Excellent supervision, team leadership, presentation and communication skills.

WORK EXPERIENCE

Senior Researcher

Lyondell Chemical Company - Newtown Square, PA - September 2010 to Present

Hydroformylation Process (Butanediol):
•Pilot plant catalyst evaluation prior to plant implementation
•Closely work with plant process engineers and chemists on implementation and other projects
• Synthesis and testing of new hydroformylation catalysts
= Demonstrated anticipated improvements over current plant catalyst

Researcher

Lyondell Chemical Company - Newtown Square, PA - 2007 to September 2010

• Synthesis and performance optimization of Ti-MWW zeolite for epoxidation studies
• Reverse emulsion TS-1 zeolite synthesis: improved product recovery procedure

• Identified leveraging variables to reproduce a previously unsuccessful Ti-MWW synthesis
• Directed consistent production of highly active, usable material to provide a new direction
• Discovered a path to shorten the synthesis by pre-heating gel prior to crystallization
• Efficiently managed two direct reports for lab bench and scale up work at peak of activities
• Awarded Operational Excellence award: Innovation and Creativity Zeolite synthesis (2009)
• Filed patent application on shortening zeolite synthesis procedure

Researcher

Lyondell Chemical Company - Newtown Square, PA - 2006 to 2007

• Hands on knowledge of various techniques for precious metal deposition

Other leadership Activities
• Newtown Square site: Co-chair for 2009-2010 Global Care Day
• Coordinated, led recruitment and identified a suitable project for site volunteer activity in 2010
• 40 employees and family members helped build Freedom Playground, Havertown, PA

Research Team Leader /Lab Manager for Professor C. G. Riordan, Dept. Chair

University of Delaware - 2003 to 2006

2003-2006
Research Team Leader /Lab Manager for Professor C. G. Riordan, Dept. Chair)
• Supervised 8 graduate and 2 undergraduate students in an academic research laboratory

Post-Doctoral Training

CRAEMS Post-Doctoral Fellow

The Johns Hopkins University - Baltimore, MD - 2001 to 2003

Collaborative Research Activities in Environmental Molecular Science) with Professor David P. Goldberg)

• Manganese porphyrinoid chemistry, epoxidations, organic ligand syntheses

Selected Accomplishments

• Discovered a room temperature stable, high-valent, Mn(V)-Oxo corrolazine complex

• Demonstrated Lewis acid catalysis capability of the complex in the epoxidation of cis-stilbene

Post-Doctoral Research Associate

University of Delaware - 1997 to 2001

with Professor. C. G. Riordan)

• Iron/sulfur; Nickel/Sulfur/Oxygen chemistries: Organic ligand syntheses

Selected Accomplishments

• Discovered a low-valent nickel thioether complex capable of direct dioxygen activation

EDUCATION

Ph. D. in Inorganic Chemistry

University of Michigan - Ann Arbor, MI

1997

B.Sc. (Hons) in Chemistry

University of Zimbabwe

1988

SKILLS

•Synthesis, Hydrothermal (Zeolites), Inorganic/Organometallic, Analytical, Lab to pilot testing, Plant support, Safety, Collaborative teamwork

PATENTS

“Process for making Titanium-MWW zeolite (#Patent Application Publication #US 2011/0190517 A1, Pub. Date : August 4 2011)

August 2011

Titanium-MWW zeolite is prepared by heating a gel formed from a titanium compound, a silicon source, a boron source, an MWW-templating agent, and water at a temperature in the range of 35° C. to 75° C. for a period of 8 to 30 hours to form a pre-crystallized gel, and heating the pre-crystallized gel to a temperature in the range of 160° C. to 190° C. for a period of 5 or more days to form the titanium-MWW zeolite. The zeolite, after it is contacted with an acid, is useful in olefin epoxidation with hydrogen peroxide.