

Energetic young Scientist organized, analytical, and detail-oriented, possessing the education, practicum, and experience to solve complex catalysis problems to gain meaningful insights in various chemical reactions.

QUALIFICATIONS SUMMARY

Heterogenous Catalysis

- Catalyst Design & Synthesis & Evaluation
- Skilled in catalyst characterization techniques.
- Able to perform physical mechanical characterization of catalyst.

Analytical Analysis & Data Interpretation

- Developing DOE using JMP software & data interpretation.
- Talent for researching on plant troubleshooting/ problem resolving.
- Ability to cover entire IP space using Scifinder, ScienceDirect & Derwent Tech.

EDUCATION

Ph.D. in Chemistry

Institute of Chemical Technology, Mumbai, India, 2014

Post Graduate Diploma in Chemical Technology Management (PGD-CTM)

Institute of Chemical Technology Mumbai, India, 2012

M.Sc. in Analytical Chemistry

University of Mumbai, India, 2008

Bachelor of Science Chemistry

K.J. Somaiya College, University of Mumbai, India, 2006

LICENSES & CERTIFICATIONS

Percipio, 2020

- Six Sigma
- Project Management
- DOE
- Women leadership qualities

EXPERIENCE HIGHLIGHTS

SABIC Research & Technology Centre, Bangalore, IND 2015 – May 2022 Scientist, Olefins & Aromatics Platform

A competent professional, with 7+ years of industrial experience in petrochemical industry. Worked on various projects

- Catalyst development for lower alkanes to benzene: design synthesis, formulation & evaluation of catalyst.
- In-dept catalyst characterization of in-house prepared catalyst.
- Physical mechanical testing of catalyst for scale-up studies.
- Proficiency in use of continuous flow fixed bed reactors, batch reactors like high pressure autoclave, use of Pd based membrane reactor for catalyst performance evaluation.
- Plant trouble shooting: 1) Benchmarking of ethylbenzene catalyst and physical mechanical characterization of catalyst to identify deactivation issues related to plant catalyst (High delta pressure, low catalyst activity & lower catalyst life as estimated life). 2) Physical mechanical testing of PTA catalyst to identify deactivation of PTA catalyst. Developed an analytical procedure to achieve reproducibility for Pd content in Pd/C catalyst.
- Circular economy project: Py-oil stabilization studies by using various acid scavenger.
- Kinetic study on multiphase metathesis of butenes & isomerization of 2-butenes to 1-butene.

Reliance Industries Pvt. Ltd. RTG, Mumbai, IND Feb 2014 – April 2015 Research Scientist, Refining Department

- Development of new generation high activity hydro-processing VGO-HT catalyst including mild hydrocracking:
 - i. Bulk catalyst development for VGO-HT
 - ii. Analytical support for feed & product characterization for VGO-HT catalyst.
 - iii. Participated in troubleshooting of plant related catalyst issues.
- Chemistry for catalyst development for CO₂ to DMC. Collaborative research with external R&D. Development of adsorbent and process from flue gas including prototype design for CO₂ capture.

Carbon Clean Solution Pvt. Ltd. (collaboration with ICT) Apr-Oct, 2013 Post-Doctoral Research Associate

CO₂ is a detrimental contaminant in several industrial gases. Use of aqueous alkanol amine technology is an efficient CO₂ capturing method. This work was on novel solvent for CO₂ capture

- The equilibrium and kinetic characteristics of the reactions between CO₂ and aqueous solutions containing blend of (X) amine, promoter mixtures were investigated using stirred cell reactor
- DOE for high pressure VLE was designed and accordingly experiment was conducted to estimate the novel solvents.

Global Petrochemical Industry, March 2016, Bangalore India

Leadership foundation Course, August 2017, Bangalore India

Business Management & economics for the Chemical Industry, July 2017, Bangalore 2017

Project Management course, May 2018, Bangalore, India

LANGUAGES

English, Full Professional Proficiency
Hindi, Native Proficiency

AWARDS

DAE-ICT Fellowship
Institute of Chemical Technology,
Mumbai, 2009-2012

Travel Fellowship Award
Department of Science and
Technology (DST) (ISCRE-22), 2012

SABIC:

- QA for Petrochemical-2016 award for 'Catalyst improvements' (IBN-Rushd)
- QA for Benchmarking 'Ethylbenzene dehydrogenation catalysts' – SADAF

RELIANCE INDUSTRIES: Best project team award in reward & recognition of Reliance Industries Pvt. Ltd.
First Prize for Poster Award
K.J Somaiya College, 2005

MEMBERSHIP

The Catalysis Society of India,
2013

Institute of Chemical Technology, Mumbai, India PhD, Department of Chemical Engineering

Mar 2014

PhD thesis title "Study of catalytic steam reforming of model bio-oil compounds". Also, have served as teaching Assistant from duration of 2010-2012.

- In this work, have extensively conducted experiments on steam reforming of various bio-oil aqueous fraction for generating H₂. Considering the complex chemical composition of this feedstock, several model compounds was investigated.

BARC, Mumbai, India Summer Research Trainee

May-Jun 2007

Synthesis, Characterization and Thermal Expansion studies on Niobium doped zirconium tungstate (Zr_{1-x}Nb_xW₂O_{8-δ})

TECHNICAL COMPETENCIES

Heterogenous Catalyst Design, synthesis, formulations, evaluation & characterization (Analytical & Evaluation Tools):

Desktop Software:

- Proficiency in handling fixed bed reactors, high pressure autoclaves, membrane reactor.
- Catalyst characterization using various analytical instrument (TEM, SEM-EDAX, XRD, TGA, BET-ASAP, TPR/TPD, HP-TGA).
- Expertise on measuring physical-mechanical characterization of catalyst viz., bulk density
- measurement, bulk & grain crushing strength, attrition loss by ASTM method & Spence method.
- Hands on experience with analytical techniques like GC, 2D GC, HPLC, UV Spectroscopy, HT-SIM DIST & RGA
- Microsoft Office (Word, Excel, PowerPoint, Outlook), SCADA software's, CHEM DRAW, Basic knowledge on Design Expert and JMP software

PATENTS & PUBLICATIONS

- Process for activating an aromatization catalyst" Filed: 29th April 2019, WO2019/211727A1
- Improved protocol for optimizing Mo/ZSM-5 catalyst for methane aromatization. Molecular Catalysis, 515 (2021) 111875.
- On the production of Hydrogen from bio-oil: A representative study using propylene glycol. Chemical Engineering Communications, 203:9, (2016) 1234-1241
- Kinetics of steam reforming of acetol over a Pt/C catalyst. Chemical Engineering Journal 180 (2012) 263-269
- Hydrogen production from biomass pyrolysis liquids: A model compound study using propylene glycol. (ISCRE-22), 2-5th Sep 2012, Maastricht, the Netherlands. (Poster Presented)
- Kinetics of steam reforming of acetol over Pt/C catalyst. CATSCHOL 2011, 5th March, 2011 (Paper Presented)
- Hydrogen production from biomass pyrolysis liquids-a model compound study using Acetol. CHEMCON 2011, 27-29th Dec 2011, Bangalore, India. (Poster Presented)