

**PHD CHEMICAL ENGINEERING** • December 2015, UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA**M.S CHEMICAL ENGINEERING** • May 2009, UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA**B.E CHEMICAL ENGINEERING** • May 2007, MANIPAL UNIVERSITY, India**WORK EXPERIENCE & PROJECTS**

- CO2 PROCESS MANAGER-WEST REGION: LINDE, INC., Tempe, AZ** Nov2023-AUG2024
- Oversee CO2 process at 6 sites across the west region with plant staff, each site with unique process challenges.
  - Be responsible for process development, larger maintenance project management, MOCs, PSM and for production meeting sales commitments.
  - Use statistical analysis tools to monitor process KPIs for all sites.
  - Work with cross-functional teams at each of the sites to perform RCAs, Process Hazard Analysis, identify gaps in maintenance, productivity and long-term projects.
- SR. CHEMICAL ENGINEER: MEDTRONIC, INC., Tempe, AZ** NOV2020-PRESENT
- Sensor-formulation development and scale up from R&D to volume manufacturing: one thermoset, one thermoplastic polymeric solution and a buffer formulation. Scouting and Down-selection of mixing equipment with novel or custom features.
  - Lead process development for cost effective, high throughput, automated equipment for continuous Buffer formulation delivery at stringent pH range to semiconductor equipment in cleanroom-1000+L of buffer per week reducing FTE and hazardous chemical handling by 90%.
  - Author Process characterization report- perform DOEs, FMEA for use in new chemical manufacturing area, complete TMV/IQ and other quality docs in accordance with GMP.
  - Scoping and down-select high throughput automated equipment for rheological materials characterization.
  - Set up hazardous chemicals tracking spreadsheet for the manufacturing area.
  - Work with cross functional teams to study effect of polymer formulation change on thin film deposition on the sensor using data collection and statistical analysis, using semiconductor process coating methods.
- R&D LAB MANAGER: AGC MULTI MATERIAL AMERICA, INC., Tempe, AZ** APRIL2019-NOV2020
- Manage routine lab work for chemical analysis/metrology of formulations, process/product development and failure analysis of high-performance polymeric PCB laminate, prepreg stack-ups and substrate using analytical chemistry, chemical, physical, electrical, thermal and mechanical testing.
  - Study material science properties of various stack-up configurations (with glass and PCB laminate) and perform failure analysis and accelerated testing.
  - Perform method development, Gage R&R and DOEs using multiple testing/characterization devices.
  - Setup of state-of-the-art mixing technologies in the laboratory with particle size analyzer.
  - Interface with R&D, QC, Production, sales and marketing, suppliers within domestic and international groups of the company for sample and data management as well as build collaborations with outside labs and Universities for testing services.
  - Work on copper foil adhesion and glass substrate projects that contribute to advancement of intellectual property and Ensure ISO 9001 Compliance of the R&D Lab.
- SR. PATENT ANALYST-CHEMISTRY/CHEMICAL ENGINEERING: GLOBAL PATENT SOLUTIONS LLC, Scottsdale, AZ** JUN2015-MAR2019
- Act as ISA (International Search Authority) for PCT patents filed with USPTO.
  - Multi-database Intellectual Property research utilizing targeted search methodologies into US and International Patent (PCT/WO) Publications and technical literature, logging cases using ABACUS docketing software.
  - Preparation of Patentability Written Opinions, Lack of Unity evaluations on claims and classification of inventions based on IPC/CPC/USPC groups based on research findings in a detail oriented, time conscious and high-quality manner with identification of multiple dependents and unsearchable claims.
- ANALYTICAL CHEMIST-QC RELEASE: PHARMACEUTICS INTERNATIONAL, INC., HUNT VALLEY, MD** SEPT2017-FEB 2018
- Independently implemented project management spreadsheet to monitor progress of deliverables for review by senior management and clients.
  - Perform analytical analysis of Raw Material and API in Pharmaceutical Manufacturing by assay, impurity, ID/PDA, ID/RT and AV of Uniformity of Dosage/Content Uniformity analysis using Agilent 1290 and Waters H class HPLC/UPLC with empower3 for processing chromatograms following Standard Operating Procedures (SOP) under full GMP/GLP requirements.

- Build data reporting templates for assay, impurity, ID/PDA as well as Logging sample information in LabWare LIMS. and maintaining inventory and access of controlled substance samples used.
- General wet chemistry techniques with daily calibrations for weight balance, pH and Raw material/Physical testing including Viscosity, Moisture content, Appearance and Deliverable volume.
- Documented all laboratory testing and maintained accurate and legible notebooks and records.

**RESEARCH ASSISTANT: UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA**

SEPT2009-May2015

- Project in collaboration with Energy Corporation of America and RPSEA/NETL, report title "Water Handling and Enhanced Productivity from Gas Shales" Contract: 11122-71.
- Study of reinjection of produced hydrofracking water after treatment with UF, NF membranes and Ion Chromatographic (Dionex) quantification of anions and cations of experimentally produced and wellsite waters.
- Development of dual porosity dual permeability continuum model using simulator to match experimental data.
- Characterization studies utilizing experimental design principles for reactors measuring permeability, porosity and imbibition for porous shale and water-based fluid samples used in surfactant formulation by contact angle and surface properties.

**TEACHING ASSISTANT: UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA**

SEPT2010- DEC2013

- Course instruction support for three courses including CHE 120- Introduction to Chemical Engineering; CHE330- Chemical Engineering Thermodynamics; CHE 444L- Chemical Engineering Laboratory (Metrology equipment & unit process).

**INTERNSHIP-PROCESS DESIGN & DEVELOPMENT DEPARTMENT: ENGINEERS INDIA LIMITED, New Delhi, India**

NOV-DEC 2005

**REPORT TITLE: "PRIMARY DISTILLATION AND CRUDE CHARACTERIZATION"**

Obtain understanding of distillation in petroleum refining using CDU and VDU. Study P&ID and PFD pertaining to Numaligarh refinery and recalculated mass balances across CDU, VDU for revamping. Certificate letter stating performance on review was "Excellent".

**PATENTS, TRADE SECRETS, PUBLICATIONS & PRESENTATIONS**

**Basabdatta Roychaudhuri** Patent Application 63/108,632-Copper Surface Treatment-Filed with USPTO November 2, 2020

**Basabdatta Roychaudhuri** 1 Trade secret with Medtronic, Inc.-Buffer formulation delivery to developer in cleanroom

**Basabdatta Roychaudhuri**, Theodore Tsotsis and Kristian Jessen (2019) *Shale-Fluid Interactions during Forced Imbibition and Flow-Back*. Journal of Petroleum Science and Engineering. Volume 172, 2019, Pages 443-453, ISSN 0920-4105

**Basabdatta Roychaudhuri** *Spontaneous Countercurrent and Forced Imbibition in Gas Shale* (2016)

**Basabdatta Roychaudhuri**, Junyi Xu, Theodore T. Tsotsis, Kristian Jessen (2014) *Forced and spontaneous imbibition experiments for quantifying surfactant efficiency in tight shales*. Presented at: 2014 SPE Western North America and Rocky Mountain Joint Regional Meeting 16-18 April 2014 in Denver, CO, USA. (Document Id: SPE-169500-MS)

**Basabdatta Roychaudhuri**, Theodore Tsotsis and Kristian Jessen (2013) *An experimental investigation of spontaneous imbibition in gas shales*. Journal of Petroleum Science and Engineering Volume 111: 87-97.

**Basabdatta Roychaudhuri**, Theodore T. Tsotsis and Kristian Jessen (2011) *An Experimental and Numerical Investigation of Spontaneous Imbibition in Gas Shales*. Presented at: Society of Petroleum Engineers Annual Technical Conference and Exhibition October 2011 in Denver, Colorado, USA. (Document Id: SPE-147652-MS).

**CERTIFICATIONS**

**Six Sigma DRM Green Belt Certification** Medtronic, Inc. April 2022

**Medtronic Technical Excellence Grant-2021 & 2022 Tempe Excellence award (Operational Excellence/Manufacturing Impact)**

**PWC Data Visualization with Advanced Excel** Grade Achieved: 91.9 % October 2017 License Number: S66YPQ2KERZP

Minitab: **Improving Manufacturing Processes-Statistical Quality Analysis, Factorial Designs** August 2020

Minitab: **Monte Carlo Simulation** September 2023

**TECHNICAL SKILLS**

<b>SOFTWARE:</b>	MS Office, Minitab, Matlab, LabVIEW, MS Visual Studio, Empower3, Labware LIMS, MS Project, JIRA
<b>PATENT DB/SOFTWARE:</b>	Espacenet, Patseer, ProQuest, PatFT/AppFT, EBSCO, WIPO, Orbit, Elsevier, Abacus
<b>RESERVOIR SIMULATOR:</b>	Eclipse 300 Compositional Reservoir simulator
<b>PROCESS EQUIPMENT:</b>	Conductive Anodic Filament Testing (CAF) testing using ESPEC chamber, PHI Press, PlasmaEtch Etcher, ISCO 260D syringe pumps, mixing/dosing process equipment, Media milling.
<b>ANALYTICAL EQUIPMENT:</b>	HPLC/UPLC (Agilent/Waters), KF Coulometer, FTIR, ICP-MS, Dionex ICS 2100, Keyence 7000 series, TGA, DSC, DMA, TMA, DHR-3 Rheometer (TA Instruments), GC/MS (Agilent), AFM/Digital Microscopy, SEM, Centrifuge, Spectrophotometer, Ph meter, Ram-e-Hart Contact angle/Goniometer, Brookfield CAP2000+/DVE, viscometer, Malvern 3000 Particle size analyzer.