Curriculum Vitae

JEETENDRA NATH PANDA

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Professional Experience

Scientist at Aditya Birla Science & Technology Company Pvt. Ltd., Mumbai (July 2016 - Present)

Summary

- Experienced Chemical Engineer with proven expertise in new process development at lab scale and technology transfer to pilot and plant scale. Driven process/product development in carbon black, sulphites, carbonates and chloro paraffin industry by developing research proposals and displaying exemplary project planning, designing of experiments and analytical skills. A team player having displayed excellent communication, organizational and leadership skills while working on projects with multi-functional teams.

Projects

- **Development of a process to produce sodium sulphite using soda ash**
  - Detailed root cause analysis (quality analysis of soda ash, estimation of unreacted soda ash/SO_2 in the absorber, analysis of absorber outlet stream, estimation of maximum capacity of absorber with respect to soda ash) for foaming issue in crystallizer while using soda ash
  - Successfully performed multiple reactions to develop process at lab and pilot scale
  - Carried out process debottlenecking to optimize production of sodium sulphite using soda ash (pH, temperature, reaction time)
  - Suggested process/equipment related modification to business based on pilot scale results
  - Developed in-house titration analysis method to quantify sodium metabisulphite, sodium carbonate, sodium bicarbonate and soda sulphite in a complex mixture solution
  - Studied techno-economic feasibility of implementation at commercial scale
  - Patent filing for the process to be initiated by the Business
- **Utilization of alkali by-pass dust to produce value added products**
  - Developed an experimental setup for the extraction of KCl from alkali by-pass dust
  - Business appreciated and accepted the product revealing that it was of the best purity in the market
- **Synthesis of carbon nanofibers (CNFs)/carbon nanotubes (CNTs) from tail gas**
  - Performed multiple lab experiments to prepare different catalysts required for the synthesis purpose
  - Successfully demonstrated CNFs/CNTs formation at pilot scale from synthesis gas
  - Successfully demonstrated CNFs/CNTs formation from actual tail gas stream at the desired plant location

- **Production of sodium bicarbonate from soda ash**
  - Developed a pilot scale set up for the production of sodium bicarbonate from soda ash
  - Optimized various process parameters to achieve the desired particle size by the business (200-micron)
  - Characterized the product through different analytical techniques for its benchmarking
- **Platform study on carbon dioxide capture and its utilization: A future perspective**
  - Literature study on carbon capture, storage and utilization
  - Prepared a technical report on different carbon dioxide separation technologies (adsorption, absorption, cryogenic, membrane), capture systems (post-combustion, pre-combustion, oxy-fuel), geological storage (enhanced oil recovery, unmineable coal bed, saline aquifers, deep ocean, in-situ) and its utilizations (fuel synthesis, mineralization, biological utilization, non-conversion use, photo-chemical reduction, electro-chemical reduction, bio-chemical, microalgae treatment, biofuel, through industrial waste water, through thermal desalination reject brine)
- **Identification of a cost-effective fuel mix for use in the kiln as an alternative to pet coke**
  - Literature study on different fuels and their characteristics
  - Developed a fuel analysis sheet for benchmarking of various alternative fuels based on their proximate analysis, ultimate analysis, metal content, availability, cost
  - Identified fuels used in different industries such as fertilizer, carbon black, steel, aluminum etc. with their characteristic properties (Fe, S, Ash, Calorific value)
  - Identified major biomass available in business location with their surplus availability, price, calorific value, suppliers
  - Identified potential coal/biomass gasification technology suppliers
  - Studied techno-economic feasibility of individual fuel/fuel blending
- **Techno-commercial support to business for distribution of starches and proteins to Indian food manufacturers**
  - Developed a datasheet containing the list of different food manufacturers who utilize starches and proteins in their products
  - Contacted multiple customers and submitted our samples to be used in their applications
  - Provided technical guidance to the customers in developing multiple formulations which could be put as new products in the market
- **Development of optimal paraffin blends to achieve product quality specifications of Chlorinated Paraffin Wax (CPW)**
  - Characterized different paraffin wax from various sources
  - Prepared different grades of CPW from various paraffin blends
  - Scaled the optimal paraffin blends
  - Demonstrated pilot trails of the optimal blends at the plant location
  - Technical support to plant team for trials on the optimal blends
- **Product and Process establishment to manufacture long chain chlorinated paraffin powder**
  - Literature study on the process development to produce powdered chloroparaffin with long chain paraffin
  - Import data analysis of chlorinated paraffin powder
  - Design of experiments for lab scale experimentations
  - Developed lab scale process and photochlorination setup for production of CP powder
  - Optimization of process parameters
  - Analysis of product to develop quality index sheet for customers

Technical Skills

- ASPEN PLUS, TG – DSC – MS, Origin Pro

Academic Profile

- M.Tech – Chemical Engineering – IIT, Kharagpur – 9.22/10 (2014 - 16)
- B.Tech – Chemical Engineering – IGIT, Sarang – 8.64/10 (2010 - 14)
- 12^{th} – F. M. Junior College, Balasore – 83.17/100 (2008 - 10)
- 10^{th} – Modern Public School – 89.6/100 (2007 - 08)

M.Tech Project

- Devolatilization study of different metallurgical coals for predicting and improving coking potential (R & D – Tata Steel, Jamshedpur – 2015 - 16)

B.Tech Project

- Neutralization of red mud by carbon dioxide treatment (IGIT Sarang – 2013 - 14)

Industrial Training

- Alumina Refinery (Operation Department) – NALCO Damanjodi, Odisha (June – July – 2013)

Honors and Awards

- Winner in Quiz Competition held at ABSTCPL for REPRISM 2019 (Apr - 2019).
- Technology award for "Demonstration of CNT formation from actual tail gas stream at Patalganga Carbon Black plant (Feb - 2018)."
- Technology award for "Development of process for production of sodium sulphite using soda ash (May - 2018)."
- Technology award for "To develop a method for identification of unreacted soda ash in a complex solution matrix (May - 2018)."
- Awarded Star of the Month (Feb - 2018) (Department of Chemical Sciences) in grateful recognition for outstanding performance, productivity and dedicated service.
- Topper of Chemical Engineering (2010 - 14) batch in B.Tech.
- Secured 477 rank (All India Basis) in GATE (Chemical Engineering) – 2014.

Certifications and Publications

- Published a paper on **"Hydrogen evolution during devolatilization to predict coking potential of metallurgical coals"** in **Energy & Fuels (ACS Publications)** ***(DOI: 10.1021/acs.energyfuels.6b01704)***
- Received certificate for poster presentation in **International Conference on Science and Engineering of Materials (ICSEM), 2018** organized by Sharda University, Greater Noida, UP.
- Received certificate for oral presentation in National Conference held at Indira Gandhi Institute of Technology, Sarang, Odisha on the topic **"Modern Trends in Engineering Solutions."**

DECLARATION

- I hereby declare that the information furnished above is true to the best of my knowledge.

Jeetendra Nath Panda