



## Kanchan Patil Chemical Engineer

To become an asset, by consistently performing with a result-oriented attitude to boost my performance for the betterment of the organization.

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### SKILLS

- Good Communication
- Keenness to learn
- Flexible
- Adaptability
- Public Speaking
- Teamwork

### EDUCATION

- **Master of Technology in Chemical Engineering**  
Vishwakarma Institute of Technology, Pune  
08/2015 – 07/2017
- **Bachelor of Engineering in Chemical Engineering**  
K.K.Wagh Institute of Engineering Education & Research, Nashik  
08/2011 – 06/2015

### LANGUAGES

- English

### INTERESTS

- Catalysis(Synthesis, Characterization & Application)
- Nanomaterials/Nano catalysis
- Environment and Energy
- Chemical Engineering

### CERTIFICATION

- Internal Auditor for **IATF 16949:2016**

### WORK EXPERIENCE

#### Chemical Systems Engineer

Cummins Technologies India Pvt. Ltd., Pune

09/2017 – Present Pune, India Achievements/Tasks

**Working as a Chemical Systems Engineer** at "Cummins Technologies India Pvt. Ltd." from 09/2017 till date.

Work profile involved,

- ▶ **Catalyst Technologist** for 4 BS-VI On-Highway projects (OBD A & OBD C), 2 NSVI (China) On-highway projects and 2 CPCB4+ Genset projects
- ▶ Supports all the field after-treatment related issues, in connect with customers
- ▶ Working on development and validation of **SCR aging oven** at supplier's facility
- ▶ Supporting global ALD work, developing tools and FEP/documents creation
- ▶ Supporting Reactor & Analysis lab and product development
- ▶ Part of Quality team for 3 months, supporting quality related tasks, witnessed audits.
- ▶ Certified Internal Auditor for **IATF 16949:2016**.

#### Simulation:

- Supporting CPCB4+ 2 programs with different nodes from initial stage of the project
- Performing simulation for steady state as well as transient duty cycles of diesel engine after-treatment system.
- Thermal tuning of the system level after-treatment model and various components like Diesel Oxidation Catalyst, Diesel Particulate Filter, Selective Catalytic Reduction and Ammonia Oxidation.
- Sizing of catalyst for heavy duty cycle BSVI as well as NSVI and gen-set applications and confirming the size of the catalyst by simulation and then validated the same by testing.
- Performed simulations to fix the size BS-IV SCR only program and complete ATS (after-treatment system) as well.
- Performed SCR thermal mapping simulations.
- Performed HC, NOx oxidation and HC light off task for Stage V, Global VI, BSIV, BSVI and CPCB4+ program.
- DEF Dilution study and size reduction study based on simulations.
- Performed ash service interval study using Monte Carlo Simulation
- Aging assessment of catalyst for each application.
- Performed stress analysis for Diesel Particulate Filter and Diesel Oxidation Catalyst to understand the stresses on the catalyst and filter with different speed- load, soot load and ash load conditions.
- Water Intrusion Analysis for SCR in various programs.
- Working on s-function simulation, to link AVL Boost and MATLAB.
- Developed MATLAB script for data analysis and parameters bucketing tasks

#### Program support:

- Creating the iDFMEA document for each component and supporting in updating the system level iDFMEA
- Finding NUDs related to program from 9 NUD box tool, develop mitigation plan and resolve the NUDs assigned
- Performing of all the tech profile and DVP&R tasks related to program and closing those in the system.
- Creating Design review documents and conducting the phase-wise reviews for assigned programs.

#### Reactor lab:

- Inspection, analysis and testing of endurance test catalysts and field return parts
- Borescope, fiberscope, and ultrasonic analysis in the lab
- Micro core reactor performance tests surface area analysis
- Site visits at customers facilities for inspections of the after-treatment system
- Supporting the installation of pilot core reactor
- Performed NH3 TPD for the aged sample
- Performed chemical analysis (SEM) and TGA for catalyst samples and soot samples from field return and test-cell tested samples.

#### Test-cell:

- Supported test-cell during HALT testing for two projects
- Supported test-cell during Transparency trials for both the BS-VI projects.

#### **Achievements:**

- 2019 Q3 Technical function Excellence Award winner as a part of ALD team.
- Recognised for supporting BS-VI projects as Catalyst Technologists.

### **SOFT SKILLS**

- AVL Boost
- CATSIM
- MATLAB & Simulink
- UNIPLLOT
- Basic ASPEN+
- Basic HYSYS
- Microsoft Office tools

### **CONFERENCES & COURSES**

- Indo-US workshop on Cell Factories (03/2016 –03/2016)  
*IIT Bombay*

### **HONOR & AWARDS**

- Technical Functional Excellence Award for Q3 2019  
*Cummins Technologies India Pvt Ltd, Pune*
- Recognised as Catalyst Technologist for supporting BS-VI programs.  
*Cummins Technologies India Pvt Ltd, Pune*
- Ladies representative and core committee member  
*Chemical Department, KKWIEER, Nashik*  
2013-2014
- Committee member in Master Students Program  
*ISTE, KKWIEER, Nashik*  
2013

### **ORGANIZATIONS**

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Cummins Emission Solution, India (08/2016 – 08/2017)

*Intern*

Lupin Ltd., Dabhasa, Vadodra (06/2014 – 06/2014)

*Intern*

Zydus Cadila Pvt. Ltd., Ankleshwar (06/2013 – 06/2013)

*Intern*

### **PROJECTS**

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#### **Selective Catalytic Reduction of NO<sub>x</sub> with Urea as BS-IV Solution: Kinetic and Simulation approach (08/2016 – 08/2017) (MTech project)**

Selective Catalytic Reduction is one of the catalytic solutions used for reducing NO<sub>x</sub> to elemental nitrogen using urea solution. Using soft tools fixed the sizes for program performing the simulations. We also learn SCR formulations and reactor data analysis. Understood the kinetics behind the models developed in the tool.

#### **Bio-methanation of Solid Waste (07/2014 – 06/2015) (B.E. project)**

Bio-methanation of Solid Waste includes production of bio-gas from organic waste. To increase the formation of methane gas using microbes found in cow-dung. This gas is then further used for domestic purpose, electricity generation, etc.

#### **Hydroponics (Extracurricular project)**

To increase the yield in less amount of nutrients with less investment

#### **Recycling of the Plaster of Paris (Extracurricular project)**

To reduce the water pollution caused due to the immersion of idols during festivals