



# King Brady

## Chemical Systems Engineer

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### STRENGTHS

- ⚙️ **Analytical Problem Solving**  
Harnessed analytical abilities addressing complex problems head-on, influencing vital project decisions.
- 💬 **Communication Skills**  
Fostered open dialogue and exchanges, ensuring interdisciplinary collaboration led to mutual goals achieved.
- 🧪 **Catalyst Characterization Expertise**  
Strengthened understanding of materials through meticulous catalytic behavior assessments reinforcing better product design.
- ★ **Leadership Qualities**  
Empowered aligning organizational efforts by leading project teams leaving an impact on emerging professionals.
- 💡 **Research Intelligence**  
Utilized strong investigative instincts for discovering innovations fuelled by enthusiasm for sustainability.

### SKILLS

Chemical kinetics

Heterogeneous catalysis

SCR systems

Laboratory reactor operation

Catalyst characterization techniques

Data analysis and technical reporting

Temperature-programmed reduction

Inductively coupled plasma analysis

Accelerated Aging Testing

Systems Thinking

Experimental methodologies

### SUMMARY

Ambitious Chemical Engineer with a Ph.D. in Chemical Engineering and broad experience in catalysis and reaction engineering. Focused on delivering innovative solutions for clean engine technologies through practical applications of scientific principles. Expertise includes engine emission control technologies like Selective Catalytic Reduction (SCR) systems. Strong analytical skills, capable of addressing challenges seamlessly in collaborative, multidisciplinary research environments. Proven record in laboratory-scale catalytic reactors operation and advanced catalyst characterization techniques such as electron microscopy and TPD. Committed to advancing environmental compliance through effective chemical performance testing.

### EXPERIENCE

#### Chemical Engineer

Catalysis Research Group 📅 June 2021 - Present 📍 Bloomington, IN

Leads projects in chemical kinetics research focusing on SCR system enhancement while ensuring environmental compliance. Partners within multidisciplinary teams to optimize reactor designs for improved efficiency and functionality. Directs characterization projects aimed at enhancing material properties through applied scientific techniques. Manages publication efforts that showcase significant field contributions originating from research initiatives.

- Conducted studies on chemical kinetics supporting regulatory compliance through improved SCR system operations.
- Developed designs for lab-scale catalytic reactors, elevating research efficacy through innovative concepts.
- Collaboratively published significant findings in peer-reviewed journals, promoting advancements in catalysis.
- Oversaw critical catalyst characterization utilizing electron microscopy and TPD methods revealing new insights.
- Applied systems thinking in research design, increasing lab productivity effectively by streamlining procedures.
- Trained interns in reactor operations and analysis, creating knowledge transfer opportunities fostering team growth.

#### Graduate Research Assistant

Chemical Systems Laboratory 📅 August 2018 - May 2021 📍 West Lafayette, IN

Contributed to groundbreaking efforts in developing new catalyst formulations, rigorously testing their capabilities. Engaged in extensive empirical experiments using ICP and XRD techniques producing reliable metrics essential for thesis research. Fostered collaborative relationships between faculty and industry partners, exploring innovative applications for emissions reduction.

- Assisted development of novel catalysts through testing platforms showcasing comprehensive performance evaluations.
- Executed experimental protocols using precision ICP and XRD techniques facilitating robust data collection.
- Implemented accelerated aging tests to discern durability factors impacting catalyst life cycles under varied conditions.
- Supported successful acquisition of grants for research funding, empowering impactful project execution.
- Collaborated with academic and business entities driving forward-thinking applications in chemical systems.
- Presented findings at national-level conferences, significantly enhancing recognition of departmental achievements.

#### Junior Chemical Engineer

Engineering Solutions Inc. 📅 June 2016 - July 2018 📍 Fort Wayne, IN

X-ray diffraction

Technical documentation

Team collaboration

Problem solving

## LANGUAGES

English Native

Spanish Proficient

## MY CAREER



● Chemical Engineer at Catalysis Research Group (5.1 Years)

● Graduate Research Assistant at Chemical Systems Laboratory (2.8 Years)

● Junior Chemical Engineer at Engineering Solutions Inc. (2.1 Years)

Focused on process optimization and troubleshooting across various chemical projects to enhance procedural outputs. Developed thorough technical documentation improving inter-departmental communication regarding projects.

- Supported designs and developments of chemical processes refining productivity that elevated project outcomes.
- Facilitated identification and resolution of barriers over chemical reactor systems boosting operational reliability.
- Created and maintained technical documentation related to project workflows aiding clarity in cross-functional teams.
- Analyzed data from trials yielding actionable insights informing enhancements to key project elements.
- Engaged in strategic meetings championing innovative ideas to streamline processing systems.
- Advocated towards continuous personal and professional growth leveraging training workshops in technology sectors.

## LEADERSHIP & AWARDS

- Best Paper Award, National Chemical Engineering Conference 2020
- Dean's List, Purdue University 2018-2021

## EDUCATION

### Ph.D. in Chemical Engineering

Purdue University 🎓 GPA: 4.0 📅 2021 📍 West Lafayette, IN

*Coursework: Thermodynamics, Reaction Engineering, Material Science, Kinetics*

## CERTIFICATIONS

- Certified Chemical Engineer 📅 2022
- Project Management Professional 📅 2023

## TECHNICAL SKILLS

- **Catalysis Techniques:** SCR systems, Temperature-programmed reduction, Catalyst characterization techniques
- **Analytical Tools:** ICP analysis, Electron microscopy, X-ray diffraction
- **Process Improvement:** Data analysis, Technical documentation, Problem solving
- **Laboratory Methods:** Reactor operation, Experimental methodologies, Accelerated Aging Testing
- **Collaboration Software:** Microsoft Teams, Google Suite, JIRA
- **Project Management:** Agile methodology, Kanban, Workflow development
- **Research Protocols:** Scientific literature reviews, Grant writing, Feasibility studies
- **Environmental Standards:** Environmental compliance, Emissions testing, Regulatory principles
- **Communication Tools:** Presentation software, Collaboration platforms, Technical reporting
- **Leadership Skills:** Team mentoring, Project leadership, Strategic planning

## PROFESSIONAL AFFILIATIONS

- President, Chemical Engineering Society, Purdue University 2020-2021
- Mentor, STEM Outreach Program for High School Students 2019-2021

## ADDITIONAL INFORMATION

**Work Status** : Authorized to work in United States. No sponsorship required.

## REFERENCES

AVAILABLE ON REQUEST