

Chemical Engineers

SOC: 17-2041 • Career Profile Report

■ Key Facts

<div>\$121,860</div> <div>Median Salary</div>	<div>21,600</div> <div>Employment</div>	<div>+3.0%</div> <div>Growth Rate</div>
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■ Requirements & Salary Range

Education: Bachelor's degree

■ Automation Risk Assessment

Low Risk - 17.0% probability of being automated in the next 10-20 years.
This job is relatively safe from automation due to its creative, social, or complex problem-solving requirements.

■ Work-Life Balance

7.2/10 - Good work-life balance

■ Personality Fit (RIASEC)

Higher scores indicate better personality fit for this career type.

Realistic	8.2/10	Investigative	8.8/10
Artistic	6.4/10	Social	5.2/10
Enterprising	5.8/10	Conventional	6.6/10

■ Top Skills Required

Analytical skills, Communication skills, Creativity, Math skills, Problem-solving skills

✓ Strengths

- High Demand
- Flexible Work
- Continuous Learning

■ Challenges

- Burnout Risk
- Rapid Technological Change

■ What They Do

Chemical Engineers typically perform the following tasks:

- Develop safety procedures to be employed by workers operating equipment or working in close proximity to ongoing chemical reactions.
- Troubleshoot problems with chemical manufacturing processes.
- Monitor and analyze data from processes and experiments.
- Evaluate chemical equipment and processes to identify ways to optimize performance or to ensure compliance with safety and environmental regulations.
- Design and plan layout of equipment.
- Prepare estimate of production costs and production progress reports for management.
- Perform tests and monitor performance of processes throughout stages of production to determine degree of control over variables such as temperature, density, specific gravity, and pressure.
- Conduct research to develop new and improved chemical manufacturing processes.
- Determine most effective arrangement of operations such as mixing, crushing, heat transfer, distillation, and drying.
- Develop processes to separate components of liquids or gases or generate electrical currents, using controlled chemical processes.
- Design measurement and control systems for chemical plants based on data collected in laboratory experiments and in pilot plant operations.
- Perform laboratory studies of steps in manufacture of new products and test proposed processes in small-scale operation, such as a pilot plant.
- Develop computer models of chemical processes.
- Direct activities of workers who operate or are engaged in constructing and improving absorption, evaporation, or electromagnetic equipment.
- Adapt processes to convert from small-scale laboratory operations to large-scale commercial production.
- Develop process flow diagrams or pipe and instrumentation diagrams.

*Generated by StartRight • Data from U.S. Bureau of Labor Statistics & O*NET*

Source: <https://www.bls.gov/ooh/architecture-and-engineering/chemical-engineers.htm>