

# Ropella Contribution to Chemical Engineering

**A** continued economic contraction remains the dominant feature of the employment landscape for chemical engineers, with fewer job openings and choosier corporate hiring processes, but chemical engineering salaries are strong, according to those closest to the chemical engineering job front.

Despite overall job losses in the chemical process industries (CPI), demand for creative chemical engineers with broad skill sets remain strong, which helps support higher salaries.

Larry Jacobsen, executive director of the National Society for Professional Engineers (NSPE; Alexandria, Va.; [www.nspe.org](http://www.nspe.org)), says chemical engineers with creativity, as well as experience that spans multiple areas within the CPI, will always be in demand because they have the ability to solve tough engineering problems. Survey data from multiple sources indicate that salaries for chemical engineers have generally increased over the past two years. Respondents to the biannual survey of the American Institute of Chemical Engineers (AIChE;



New York; [www.aiche.org](http://www.aiche.org)) report salary gains of 7% over 2007 (the last time the survey was conducted). The median chemical engineering salary for 2009 is \$110,950 (compared to 103,730 in 2007). Data collected by the NSPE indicate that the 2009 median salary for chemical engineers in that pool is \$105,000, a 2% increase over the 2008 value. Medians are considered the preferred measure of typical salaries, because, unlike the arithmetic mean, the median is not affected by extreme values.

While salaries have moved higher, the range of salaries for chemical engineers is significant, points out NSPE's Jacobsen. Top students from the best engineering schools will likely command significantly higher salaries than the rest. Similarly, companies pursuing the best performers in the workplace — especially those with the ability to bring knowledge and insight from one industry sector to another — will drive salaries higher. Data from the AIChE survey indicate that the median salary for the lowest decile of the responding population is \$69,230, while the median salary among the top-paid tenth of the responding group is \$180,000 (Table 1). Salaries across the spectrum have risen consistently for the past 15 years. Consistent with expectations, earnings increased with work experience, the AIChE survey shows. The median salary for AIChE survey respondents with

less than six years of time on the job is \$72,500. The median salary moves to \$88,000, \$101,000 and \$113,000 as experience grows to 6–10 years, 11–15 years and 16–20 years, respectively. The largest group of respondents to the AIChE survey had 26–30 years of work experience and showed a median salary of \$130,000. Recruitment landscape Although experienced engineers seem to be enjoying solid compensation levels, companies looking to recruit and hire are often taking more time to make hiring decisions and exhibiting choosier behavior when evaluating candidates. Jessalyn Brodie, a recruiting specialist at Engineering Resource Group (ERG; Morris Plains, N.J.; [www.engineeringresource.com](http://www.engineeringresource.com)) says the number of contract and permanent job openings for which the firm is conducting searches has dropped by two-thirds since last year. Rick Brandeis, senior partner at the recruiting firm CPS Inc. (Westchester, Ill.; [www.cps4jobs.com](http://www.cps4jobs.com)) says his company has been conducting only 60%–70% of its usual business in the last few months.

Patrick Ropella, founder of the chemical engineering recruiting firm Ropella Group (Milton, Fla.; [www.ropella.com](http://www.ropella.com)) adds that his firm has seen “replacement hiring” fall to half of last year’s level, while “growth hiring” — indicating expansion of production — has fallen even more sharply, at “barely a tenth of what it was” in past years. Job losses and cost-cutting have meant that companies have a wider choice of candidates for jobs, a situation that for some time had been reversed, with job seeking engineers having a choice of multiple positions.

The fewer open positions can likely be attributed to several factors. Amid the economic slowdown, lower demand for chemicals and chemical products across the wider economy has resulted in cuts on CPI production lines. Analysis by the U.S. Bureau of Labor Statistics (Washington, D.C.; [www.bls.gov](http://www.bls.gov)) indicates that production cutbacks are responsible for the majority of job losses in



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the chemical industry as a whole. Smaller production levels and several cases of postponed facilities expansion projects have resulted in net negative growth in job openings for chemical engineers. At the same time, those companies that are looking to hire for specific needs have been adopting somewhat of a “wait and see” attitude toward the process, says CPS Inc.’s Brandeis. Another factor that is playing out in the recessed economy is the delayed retirement of engineers from the “Baby Boomer” generation, says Ropella. “There was an anticipated increase in demand for highly trained people in the sciences as boomers started to retire,” he explains, “but now many are working longer” because of the economic situation. A similarly mixed picture with regard to job openings and salaries emerges for chemical engineers beginning their careers. Andrea Koncz, communications manager for the National Assn. of Colleges and Employers (NACE; Bethlehem, Penn.; www.naceweb.org), says that compared to a year ago, there are fewer entry-level positions for chemical engineers with bachelor’s degrees, but salaries offered for those positions compare very favorably to previous years. Surveys of recent college graduates in all fields show that the highest average starting salaries are commanded by petroleum engineers (\$83,121) and chemical engineers (\$64,902). Despite the lower number of job openings, Koncz has not observed a dramatic surge in students opting to attend graduate school rather than wading into the tough job market. Among chemical engineers, Koncz says the smaller number of chemical engineering graduates in the U.S. could boost demand for local candidates.

Recruiters show a cautiously optimistic side when looking toward the future. CPS Inc.’s Brandeis says the “worst is probably over” for the economic situation with regard to chemical engineering jobs. ERG chemical engineering recruiter Allan Berman senses a rebound also, pointing out that his company has observed a recent decrease in the number of recently laid off engineers approaching the company for job search help.

## Job prospects show hot spots

The effects of the recession on the CPI have been the dominant force in shaping the employment landscape, but they have not been uniform across all industry sectors. Several subsections are particularly active, while others are slower than average, even given the economic downturn. Ropella comments that employment opportunities in areas of the CPI involved with renewable energy and the environment are particularly strong. Chemical engineers can find openings in biodiesel and ethanol production as well as in solar and wind power. Ropella adds that opportunities in water and waste treatment are also prevalent. However, recession-wary companies are cutting costs by canceling or postponing capital-intensive projects, so there are few new plants beginning construction, Ropella explains. ERG president Jim Terkevitch adds that chemical engineers can also find solid job prospects in the defense/aerospace and medical device industries.

Other areas where the job outlook is holding strong have to do with job functions rather than particular fields. Process control and process safety positions are relatively abundant, says Brandeis. Examples of other CPI sectors with relatively strong job outlooks include consumer-driven areas like personal care products, cosmetics, food-and-beverage and soaps-and-detergents industries. On the other hand, sectors with poorer job outlooks include suppliers of the automotive and housing industries, the pharmaceutical industry and the coatings and adhesives markets.

To a small extent, salaries reflect the number of job openings in certain areas. For example, median salary in a “down” industry like automotive was \$92,600, according to engineers responding to the AIChE survey, while median salary for a “hot” area like alternative energy was \$110,000. (note: number of respondents classifying themselves as “automotive” is relatively small). However, the salaries generally are defined by other factors than the number of openings. The industry areas with the highest (education, busi-

ness/finance/law, and petroleum production) and lowest (aerospace, automotive, environmental) median salaries tended to fall into neither the category of greatest nor least hiring activity as observed by the recruiters.

Function and geography The AIChE salary survey indicates subtle variations in median chemical engineering salaries according to geographic area. For example, median salaries in the petroleum-heavy gulf states (Texas, Louisiana, Alabama, Mississippi) hover between \$120,000 and \$125,000, while those in the Rocky Mountain region, the plains states of the Midwest, and the southeastern U.S. come in around \$15,000–\$20,000 less. Median salaries in the middle Atlantic region, which includes states with high CPI presence, like New Jersey, as well as the Pacific region split the difference, with median chemical engineering salaries coming in at around \$113,000–\$114,000.

Variations in median salaries also appear significant between survey respondents who are divided by industry.

Engineers in education reported the highest median salary (\$139,560), and those in petroleum production and refining followed at \$130,000. Engineers in the law, insurance or finance fields, were the only group whose median salary topped \$130,000, although the number of respondents in that category was less than 20, compared with almost 200 in education and over 250 for petroleum refining. Other industries with higher median salaries include oilfield services and exploration (\$126,000), catalysts (\$123,000) and industrial gases (\$120,000). Industries with median salaries over \$110,000 include petroleum products (\$116,900), nuclear energy (\$115,000), software (\$112,000) and synthetic fibers and films (\$111,000). Industries with the lowest median salaries as reported include aerospace (\$96,600), automotive (\$92,600), environmental engineering (\$95,000) and safety and health (\$98,480).