



Chemical Engineering Salary Report 2023

I am immensely grateful for the people who have helped with this project, particularly to my colleagues, John Peterson, Luke Jolly and Hue Polinski, and to the 450+ chemical engineers who contributed their data this time around. Thank you!

➤ **Methods:**

This salary report was based on 456 unique data points, collected via web form from December 13th, 2022 to January 9th, 2023. All of the data was self-reported (and anonymous), and respondents answered a series of 14 questions covering topics including salary, non-base compensation, work arrangements and industry. All the collected information was analyzed by me and all identifying information on entries was removed prior to analysis. Please forgive me, I'm not a statistician, so I've done my best to provide as much transparency here as possible. I think there are some robust conclusions that can be drawn and there are areas where the data was shallower and so conclusions in those areas may be more elusive. When that was the case, I have made efforts to highlight that fact.

I previously updated this salary report in January 2022 – it is the opinion of our office (and other colleagues) that a lot changed in 2022 and so it seemed like a good time for another update. I have made attempts to compare some of this data to the last survey I did, but as you will see, some of those comparisons are difficult-to-impossible because either I did not have previous data or the requirements of a larger data set caused changes in how the data was compiled. If you have specific questions for me, either about the data set or about your situation, please don't hesitate to contact me.

How to Use This Data:

This data isn't intended to be the final word. Rather, this should give an individual a broad-strokes approximation of where they stand in relation to their peers. To that end, I envision that the various data points would be used together – for example, if you are 20 years into your career, you live in the Midwest, you are a manager and you work in the Industrial Gases industry; use the data provided here, as it relates to those 4 categories, to gain a picture of the general compensation structure as it relates to your specific situation.

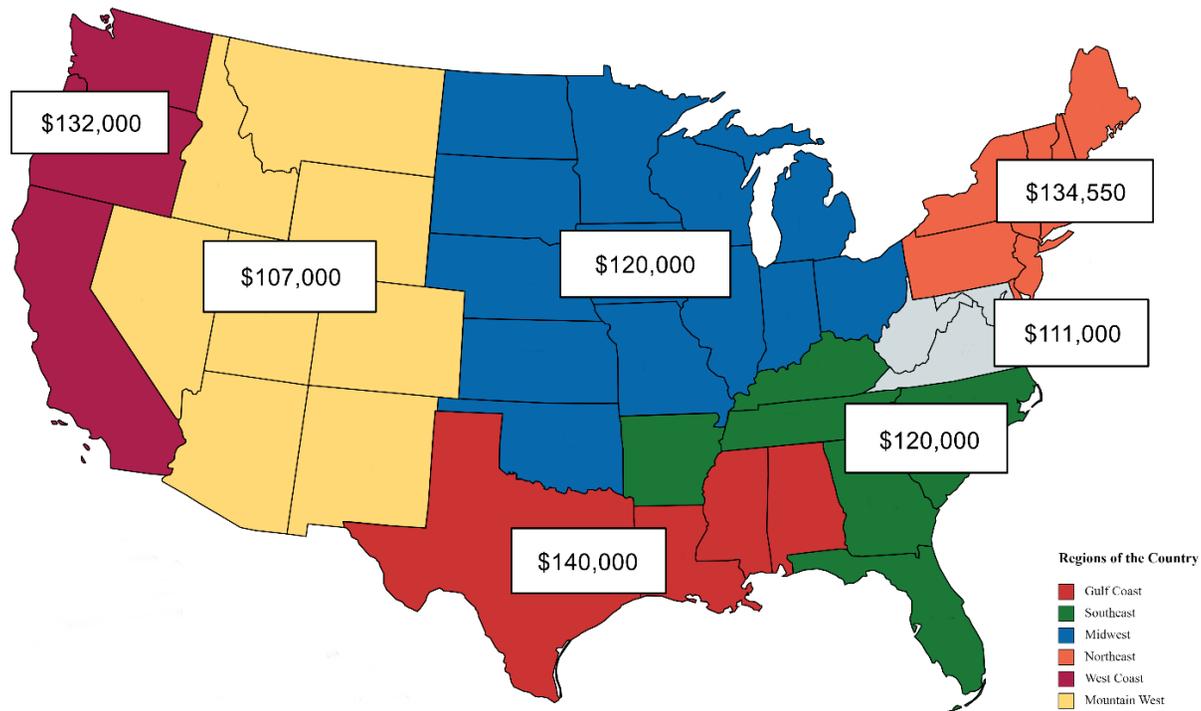
➤ **Data:**

1.) SALARY INFORMATION BY REGION/LOCATION

I would have loved to be able to breakdown base salary figures by both location AND experience level, but even at 450+ points of data, I didn't have enough. So – this is very rough, but I did provide a 25th and 75th percentile breakdown which should help a little.



Region	Median Salary	25th %	75th %	Median Bonus	Median Vacation Days	9/80?	Hybrid?	WFH?	Median Yrs of Exp for respondents in this category
Southeast	\$120,000	\$103,400	\$143,000	10%	20	21% Y	43% Y	23% Y	10
Northeast	\$134,550	\$108,350	\$153,750	10%	17	11% Y	66% Y	59% Y	10
Midwest	\$120,000	\$102,750	\$141,000	10%	20	25% Y	43% Y	25% Y	10
Gulf Coast	\$140,000	\$120,000	\$163,500	12%	20	57% Y	49% Y	21% Y	10
Coastal West (CA, OR, WA)	\$132,000	\$108,000	\$160,000	10%	15	26% Y	49% Y	34% Y	8
Mountain West	\$107,000	\$98,385	\$125,675	10%	20	42% Y	26% Y	53% Y	7
Mid-Atlantic	\$111,000	\$92,750	\$130,750	8%	18	36% Y	50% Y	36% Y	6.5



Commentary:

When I shared the survey last year, a couple of people suggested that I use ‘median’ instead of ‘average’ and when I consider that there are definitely some outliers in my dataset, I thought this was good advice. Given that – it makes it a little more difficult to compare year over year data, since last year’s data was all averages. I see increases in the Coastal West, Gulf Coast and Northeast, while the other sectors have remained relatively stable.

2.) SALARY INFORMATION BY SUB-INDUSTRY

***I’ve included the sub-industries here for which I received at least 10 responses. Even 10 is too small of a sample size, but that’s where I decided to cut it off. So, if you don’t see your industry here, I just didn’t have enough respondents from that sub-industry to share meaningful data.*

Industry	N	Median Salary	Median Bonus	Median Vacation (in Days)	9/80?	Hybrid?	WFH?	Pension?	Profit Share?	LTI?	Stock?	Signing Bonuses for New Hires?	Education Reimbursement?	Median Yrs of Exp for Respondents in this Category
Aerospace	10	\$104,500	2%	18	80% Y	50% Y	30% Y	0% Y	10% Y	20% Y	10% Y	60% Y	70% Y	6
Agriculture Industry (not fertilizer)	24	\$114,500	10%	20	13% Y	30% Y	26% Y	13% Y	13% Y	17% Y	22% Y	65% Y	30% Y	8
Biotechnology	23	\$120,000	7%	20	0% Y	43% Y	43% Y	4% Y	0% Y	9% Y	48% Y	39% Y	30% Y	7
Building Materials	15	\$142,350	14%	15	0% Y	27% Y	20% Y	0% Y	33% Y	7% Y	27% Y	27% Y	53% Y	12
EPC/A&E/Design Firm	19	\$130,776	8%	16	32% Y	68% Y	26% Y	0% Y	32% Y	0% Y	5% Y	16% Y	21% Y	10
Industrial Chemicals	47	\$126,000	10%	20	53% Y	47% Y	16% Y	7% Y	13% Y	11% Y	16% Y	47% Y	24% Y	10
Oil & Energy	62	\$132,000	12%	20	41% Y	53% Y	29% Y	36% Y	19% Y	16% Y	29% Y	47% Y	45% Y	9
Paints/Coatings/Adhesives	16	\$120,000	10%	15	23% Y	15% Y	15% Y	0% Y	8% Y	15% Y	8% Y	54% Y	31% Y	10
Petrochemicals/Plastics	49	\$135,000	11%	20	62% Y	51% Y	21% Y	21% Y	15% Y	21% Y	21% Y	45% Y	38% Y	9
Pharmaceuticals	32	\$117,500	11%	20	13% Y	56% Y	53% Y	13% Y	19% Y	16% Y	25% Y	47% Y	50% Y	9.5
Semiconductors/Electronic Materials	13	\$138,000	11%	15	8% Y	77% Y	46% Y	8% Y	23% Y	15% Y	69% Y	38% Y	38% Y	8
Specialty Chemicals	112	\$130,000	10%	20	34% Y	43% Y	34% Y	9% Y	11% Y	13% Y	12% Y	45% Y	40% Y	10

Commentary:

One of the questions we are often asked is ‘which industries pay the best’? I was surprised by the building materials industry (sample size issues?), but not by petrochemicals, oil & energy and semiconductors. Anecdotally that is what I would have guessed were the best-paying industries, and this data bears that out. Among the questions we asked were questions about what kinds of non-comp perks and/or non-base compensation companies are offering and so I’ve shared that data here as well, broken down by industry. It seems that at least in some sectors, the 9/80 schedule has really caught on. Hybrid work models definitely seem to have some staying power as well. ****One helpful note** – I included the median experience level for the respondents in each industry to allow for more of an apples-to-apples comparison.



3.) SALARY INFORMATION BY BACHELOR'S DEGREE VS ADVANCED DEGREE

This is another one of those questions we are frequently asked – I didn't have enough data to break it down between Bachelor's, Master's and Doctorate, so I just did Bachelor's versus Advanced degree. That may have tempered the differences somewhat, I'm not sure.

	N	Median Base	25th %	75th %	Median Bonus	Median Vacation	IC/Mgr Breakdown	Median 401K
0-5 YRS B	83	\$98,000	\$86,000	\$110,000	7%	15 Days	76 IC / 7 Mgr	5%
0-5 YRS Adv	18	\$100,000	\$88,750	\$110,000	8%	15 Days	16 IC / 2 Mgr	6%
6-10 YRS B	134	\$124,500	\$105,250	\$140,000	10%	20 Days	100 IC / 34 Mgr	6%
6-10 YRS Adv	34	\$120,000	\$114,000	\$130,000	10%	17 Days	22 IC / 12 Mgr	6%
11-15 YRS B	55	\$132,000	\$122,000	\$150,000	12%	20 Days	34 IC / 21 Mgr	6%
11-15 YRS Adv	31	\$140,000	\$126,000	\$160,000	15%	16 Days	19 IC / 12 Mgr	6%
16-20 YRS B	18	\$162,500	\$140,000	\$173,500	15%	20 Days	6 IC / 12 Mgr	5%
16-20 YRS Adv	27	\$166,000	\$142,000	\$180,000	15%	20 Days	12IC / 15 Mgr	6%
21+ YRS B	31	\$163,000	\$137,000	\$181,000	14%	20 Days	13 IC / 18 Mgr	5%
21+ YRS Adv	25	\$168,500	\$141,000	\$200,000	15%	20 Days	9 IC / 16 Mgr	5%

Commentary:

What is surprising to me is that overall, the level of degree does not seem to make a huge difference in terms of salary. It makes some difference, but I would have expected to see more of a stark contrast. For future surveys, I would be interested to see if a large enough data set could be obtained in order to evaluate each degree level on its own. My anecdotal experience tells me that engineers with Ph.D.-level education do tend to make quite a bit more than engineers with Bachelor's level education, particularly for individual contributor positions. Also – the data does show that later in one's career, an advanced degree does raise the 75th percentile potential.

4.) SALARY INFORMATION BY INDIVIDUAL CONTRIBUTOR ROLES VS MANAGEMENT ROLES

I left out the 0-5 years of experience bracket for this report. Out of all the respondents in that category (96), only 7 were at a management level position during the first 5 years of their career.



	N	M/F Breakdown	Median Base	25th %	75th %	Median Bonus	Median Vacation	Median 401K
0-5 YRS IC	N/A							
0-5 YRS Mgr	N/A							
6-10 YRS IC	122	103M / 19F	\$120,000	\$104,000	\$132,000	10%	18 Days	6%
6-10 YRS Mgr	51	43M / 8F	\$128,750	\$119,000	\$154,000	10%	20 Days	6%
11-15 YRS IC	53	45M / 8F	\$133,000	\$120,000	\$146,500	12%	20 Days	6%
11-15 YRS Mgr	33	30M / 3F	\$142,000	\$130,000	\$172,500	15%	20 Days	6%
16-20 YRS IC	18	12M / 6F	\$141,000	\$130,000	\$156,000	10%	20 Days	6%
16-20 YRS Mgr	27	22M / 5F	\$172,000	\$162,000	\$204,000	20%	20 Days	6%
21+ YRS IC	22	19M / 3F	\$144,000	\$132,000	\$170,000	10%	20 Days	6%
21+ YRS Mgr	34	31M / 3F	\$178,000	\$160,000	\$201,000	20%	20 Days	6%

Commentary:

As opposed to education, where I was underwhelmed by the differences, here the differences between salaries at an individual contributor level verses those at a management level, are stark, especially in that mid-career level (16-20+ yrs of experience). This makes sense to me, but it is interesting to see just how much of a difference there is. One thing I found interesting, when analyzing this data, was that 401K match seems to be a validator in some way. The overall industry average is 6% and it is one of those things that remains fairly static over time. Given that this dataset keeps that marker steady, I would say these results are valid.

5.) NON-BASE COMPENSATION AND OTHER PERKS

This might be the part of the survey I was most interested in. I wanted to answer questions like, “at what level has the chemical industry adopted work-from-home (WFH) policies?” or “is it just my imagination or are more and more companies doing 9/80 schedules?” or “what percentage of engineers are receiving a pension?” I also wanted some concrete data in these areas because out of all of the questions I get, the question of “do you have any work-remote jobs” is probably still #1. Up until now, it has been almost impossible to find any kind of information about these things from an industry-wide standpoint.



	Does Your Employer Offer a 9/80 Schedule?	...a Hybrid Schedule (ex. 2 in, 3 out, etc)	...a Work-Remote Option?	...a Pension Program?	...a Profit Sharing Plan?	...Stock Options or Stock Grants?	...a Long-term Incentive Plan (LTI)?	...Sign-on bonuses for New Hires?	...a Higher Education Reimbursement Program?
All Respondents	31.7% Yes	47.6%	30.1%	12.4%	15.1%	14.0%	22.9%	44.2%	38.7%
Individual Contributors	32%	50%	30%	15%	16%	10%	22%	43%	38%
Managers	31%	42%	31%	8%	14%	22%	24%	47%	40%
Agriculture Industry	13%	30%	26%	13%	13%	17%	22%	65%	30%
Biotechnology	0%	43%	43%	4%	0%	9%	48%	39%	30%
Building Materials	0%	27%	20%	0%	33%	7%	27%	27%	53%
EPC/A&E/Design Firm	32%	68%	26%	0%	32%	0%	5%	16%	21%
Industrial Chemicals	53%	47%	16%	7%	13%	11%	16%	47%	24%
Oil & Energy	41%	53%	29%	36%	19%	16%	29%	47%	45%
Paints/Coatings/Adhesives	23%	15%	15%	0%	8%	15%	8%	54%	31%
Petrochemicals/Plastics	62%	51%	21%	21%	15%	21%	21%	45%	38%
Pharmaceuticals	13%	56%	53%	13%	19%	16%	25%	47%	50%
Specialty Chemicals	34%	43%	34%	9%	11%	13%	12%	45%	40%

**Percentages listed are the percentage of respondents who answered "Yes", their company does offer _____.

Commentary:

Honest truth, I thought work-remote was going to be closer to 10-15% of respondents. In an industry that is predominantly manufacturing, it is surprising to me that over 30% of respondents said they have some kind of work-remote option. An important note to make here would be that just because 30% of respondents reported having a work-remote option, that doesn't mean 30% of companies are offering work-remote options. Many respondents from the survey probably work for the same company. Anyway – I've taken the liberty of highlighting (in red) the outliers in each column. A lot of these make sense too – there are a TON of petrochem/plastics companies in the Gulf Coast and 9/80 schedules are easily most common in that region. The EPC industry being a front-runner for hybrid schedules is no surprise either, a lot of that type of work can be done remotely. The pharmaceutical industry being the leader in Work from Home...not hard to understand. Oil & Energy really being one of the last holdouts for pension programs, again – makes sense. No real adoption of profit-sharing programs in biotech is somewhat surprising, but then you see they have balanced that somewhat with long-term incentive programs. There is a larger-than-normal concentration of startup companies in the biotech space, so when I put those two things together, it makes sense. Less of those companies are profitable now, so they're not offering short-term incentives, but long-term incentives instead. Sign-on bonuses for new hires are pretty common right now (relatively speaking), no surprise there given the war for talent. Its good to see a reasonably high level of education reimbursement programs as well.

➤ Discussion/General Comments:

The one thing that excites me about this report, more than ones I've compiled in the past, is that all of this data is about as fresh as it can be. In the past, I have relied upon data derived from placements and general conversations over the course of a year's time – and while I



think past reports were relevant, I always had that nagging question. With this dataset, I feel confident that as a snapshot, this report accurately captures the current marketplace. Let me reiterate my thanks to those who participated. I'm looking forward to future surveys where we can grow this dataset even further (more on that at the end).

My word of caution when looking at data like this is to keep all elements in mind. For chemical engineers, location matters. Engineers in the Gulf Coast region are paid more simply because of the higher levels of demand in that region. Industry matters. Whether you are an individual contributor or manager matters too. Education-level probably matters, but I suspect it matters more later in your career than earlier (a good reason to try and find an employer who will help pay for the costs of higher education). Also keep in mind that there are multiple parts to compensation. Almost 15% of the respondents reported that they have no bonus target (0%). Some companies out there pay a higher base, but no bonus (ExxonMobil being just one example). If a company does have a bonus program, it's worth asking them what their payout average has been over the past 5 years. Many companies structure their bonus programs in such a way that they can be paid out over-target. In good years, those are some awesome bonuses. Vacation time is another one of those things that is typically negotiable. Other things like long-term incentive plans, stock options, profit-sharing programs and education reimbursement programs can also be lucrative aspects of overall compensation. Know all of the elements before you make a decision.

One thing that became painfully clear from this data was that companies have all sorts of ways of doing 401K. I heard so many variations, "dollar for dollar match on the first 4% and company kicks in another 3%", "\$0.50 match on up to 10% contribution" and on and on. All offers should include a fairly clear document on what the company does for the 401K program. If the language isn't clear, ask someone to explain it to you...a '50-cent match on 10%' is not as good as a '6% dollar-for-dollar match'...seems obvious, but to my mind, the subtle number differences are meant to make things seem better than they are.

Lastly – I was asked by many to do a breakdown of salary levels comparing male and female engineers, and that is something I would like to do, but the data didn't allow for anything meaningful this time around. Out of 456 respondents, 82% were male and 18% were female, leaving me with about 80 data points for female engineers. I don't know if this is a flaw in my data collection methods or if that is actually representative of the industry...if so, then my dataset needs to be much larger so that I can tease out meaningful comparisons.

I re-worked some of the data from last year's salary report so that I could compare apples to apples. Here is that chart – I didn't have non-base comp data for last year's report, so I just boiled it down to median base salary differences. There were increases, in just one year, across the board. The smallest increases were at the upper level of experience, but I would expect that to a degree because I don't think engineers with 20+ years of experience are changing jobs as often as their less experienced counterparts (my experience anyway).



	N	Median Base	25th %	75th %	Difference '22 to '23	IC/Mgr Breakdown
0-5 YRS '23	83	\$98,000	\$86,000	\$110,000	+ 14.6%	76 IC / 7 Mgr
0-5 YRS '22	50	\$85,500	\$80,000	\$93,000		45 IC / 5 Mgr
6-10 YRS '23	134	\$124,500	\$105,250	\$140,000	+ 13.2%	100 IC / 34 Mgr
6-10 YRS '22	65	\$110,000	\$100,000	\$125,000		57 IC / 8 Mgr
11-15 YRS '23	55	\$132,000	\$122,000	\$150,000	+ 5.6%	34IC / 21 Mgr
11-15 YRS '22	42	\$125,000	\$115,000	\$136,250		27 IC / 15 Mgr
16-20 YRS '23	18	\$163,500	\$140,000	\$173,500	+ 21.1%	6 IC / 12 Mgr
16-20 YRS '22	33	\$135,000	\$120,500	\$175,000		5 IC / 28 Mgr
21+ YRS '23	31	\$163,000	\$137,000	\$181,000	+1.9 %	13 IC / 18 Mgr
21+ YRS '22	54	\$160,000	\$139,000	\$182,000		6 IC / 48 Mgr

➤ **Crystal Ball Time:**

I'll preface this by saying that I don't know what's going to happen. Economic forecasting is hard. I think the tech sector and the finance sector are going through hard times right now, but those hard times haven't yet affected the manufacturing industry that much. Things that give me pause are things like the current state of the housing market. If fewer houses are being built, then fewer chemicals and materials are being used by that industry. On the flip side, the automotive industry is doing pretty well and each car has over \$3,000 worth of chemicals and materials in it. Some kind of pullback in hiring seems inevitable because it can't continue like this, but when that happens is anyone's guess.

For Engineers: if you feel like you're egregiously underpaid (and this data backs that up), it might be worth exploring a job change now, before the merry-go-round starts to slow down. Or – if you really like your current situation and want to stay, take this kind of thing to your manager and see if something can be done to adjust your salary to something that is more competitive.

For Employers: I hope this is helpful for benchmarking purposes. I ran a poll on LinkedIn in early January 2023 and out of almost 700 responses, 30% of people said they had received a non-merit-based raise in the past 12 months. I would be willing to bet that more and more companies will be doing this, simply because things have changed so quickly. It is SO much cheaper to pay the people you have a little more, in order to remain competitive, than it is to have someone leave and have to backfill their role.

Moving Forward: In attempts to build a truly dynamic dataset, I'm going to open up the salary survey form on our website permanently. Please refer your chemical engineering colleagues and friends to it. I'd like to have 1,000+ data point for the next survey.

Salary Survey URL: <https://www.sunrecruiting.com/salary-survey>

