1972 Starting Salary Survey

Introduction

This is one of two salary surveys for chemists in 1972 and it is restricted to recent graduates. Our Comprehensive Salary Survey was run in March 1972 and reported in C&EN August 21, 1972. It is hoped that readers will not restrict themselves to this study alone but also look at the Comprehensive Salary Survey, the Employment Status Survey and the Academic Survey for 1972. In addition, other professional societies publish data in this area as does the College Placement Council. The American Chemical Society is building a comprehensive system for studying what is referred to as the Academic Pipeline, i.e. the production of chemists and chemical engineers at all degree levels. This data feeds into what will be our supply/demand projections, which relate the number of chemists available to the number of jobs.

Sample Universe & Methodology

This Survey was conducted by querying all chemistry degree recipients from ACS certified schools. The number of forms sent was 12,932; the usable return was 5,747 for a 44.4% return. (An excellent return rate considering the transient nature of many of the addresses.) Among the returns were responses from 3,961 chemists and 1,664 chemical engineers.

Returns were manually edited, keypunched and then analyzed using an IBM sorter. In the future, as questionnaires are standardized

analysis will be conducted by computer. Incomplete results based on 4,352 replies were reported in the "Careers" issue of Chemical and Engineering News, October 2, 1972. An additional 1,395 returns are included in these results. Summarizing, our gross breakout would be:

	C&EN Careers Data	Final Survey
Total	4352	5747
Chemists	2811	3961
Chemical Engineers	1431	1664
Others	89	96
No Report	21	26

We had hoped to make a follow-up Survey later in 1972 but budgetary constraints prohibit that effort. Both analyses were carried out by Maria Frizat of the Manpower Studies Office.

Discussion

In contradistinction to graduates in the liberal arts, graduates with technical degrees continue to fare better on the job market. The technical graduate finds it easier to move into related jobs which require the quantitative background (e.g. programming, technical writing, environmental studies, clinical work). Surprisingly, in Britain, the reverse is true. There, college graduates in the sciences earn $720 less per year than graduates in the social sciences and arts. (Chronicle of Higher Education 9/25/72 page 9.)

There are indications that the number of non-Chemistry majors taking chemistry courses is on the rise. A poll taken by the

Association of American Medical Colleges indicates that the number of undergraduates in premedical studies has increased about 20% from academic year 1970-71 to academic year 1971-72. It has been widely reported that the number of applications to law schools have boomed. The MBA with the technical undergraduate degree is a prize catch for many firms. (Survey of Starting Salaries - Abbot, Langer and Associates, Chicago) As evidenced in this year's survey, chemistry graduates move easily into areas such as medicine, business administration and patent law where the technical degree is a tremendous boost to future studies. There are, however, indications that the college student of today is disillusioned with the efficacy of both undergraduate and graduate studies (NSF Science Resources Studies Highlights 72-308; American Council on Education HEP Survey No. 10, Expected First Year Graduate Enrollment in Science and Engineering, Fall 1972; American Council on Education longitudinal research program.) Minority group students and women do not move into science careers at the same rate as Caucasian males. The rate is usually lower although orientals have a higher rate. (ACE Research Reports, Volume 7, Number 3.)

Economic Considerations

While Federal Obligations to Colleges have gone up in terms of current dollars, in terms of constant 1967 dollars, there has been a marked decrease. For 1971, Federal support for fellowships, traineeships and training grants in the physical sciences was 16 million. It was 225 million for life sciences and 22 million for engineering. (NSF 72-316, 72-310, 72-300)

The ratio of R&D effort to GNP which exceeded 3% in 1964 has moved downward precipitously since 1967. The ratio of Industrial R&D performance to GNP has likewise been moving downward since 1967. (NSF 72-309). It should be pointed out that of the major industries, chemistry and allied products receive the least in Federal support on a percentage basis. Most funds (about 90%) are company generated. Thus, chemistry was one of the few fields not heavily affected by federal cutbacks and indeed reported an increase in the number of full time equivalent scientists and engineers between January 1970 and January 1971. However, Chemical Industry R&D spending as a % of sales has dropped since 1970.

ACS Employment Status surveys for 1971 and 1972 (March) showed unemployment rates of 2.7 and 3.0 respectively. This is alarming for a field accustomed to a 1% or less unemployment rate. There has been no strong shift away from chemistry (based on O.E. figures on numbers of graduates) to contradict Brode's predictions of an abundance of chemists through the 1970's. (Science, 16 July 1971)

Demand

Qualitatively, the picture doesn't look good. Industry (the principal employer of chemists) seems to have come to the conclusion that it can operate just as effectively and more efficiently with fewer scientists. Basic research is being deemphasized. Applied research and development of discoveries already in hand will be emphasized in the short term. Business seems inclined to wait for the economy to clearly demonstrate it has become healthy before

venturing into new areas. (Journal of Commerce 10/11/72, page 1, Kiefer, C&EN 9/18/72, page 38.) However, both the Deutsch-Shea and the National Industrial Conference Boards Indexes of demand are showing a steady rise. (These are based on help-wanted advertisements. The Conference Boards is general, Deutsch-Shea is Scientific-Technical.)

The teaching profession (at all levels) is becoming impacted by oversupply. Demand is based on the number of students and student/faculty ratios which are in turn affected by budgets for education. There are indications that cost/effectiveness is being applied to the educational system and there is noticeable tightening of the purse strings. Couple this with a decrease in the number of students (based on population and fertility rates) and we can see that, barring a change in educational patterns the potential pedagogue or professor is in trouble. (Papers by Alan Cartter) The shift of students from private schools to publicly supported colleges and universities puts the reins of education more and more into the hands of legislatures which may be expected to respond to complaints about higher taxes to support schools.

The Federal government has been belt tightening for a while. There is a concerted effort to change the concentration of effort from basic research to developing technology which can be rapidly applied to human needs. The greatest hope for jobs in the civil service arises from the supposition that state and local governments will require experts in technology to help in the regulatory and environmental protection functions they must carry out. While

criminalistics or forensic science is seen as an area into which more technologists can move, there is not as yet any clear indication of how many (or where) the jobs are to be found.

Survey Results

The accompanying tables and charts provide all the statistically valid tabulated data and they should be perused. At this point we would like to touch on a few of the high points arising from this year's survey.

Engineers seem more able to fill out questionnaires than chemists! Less editing had to be done on returns from Chem E's. Many of the returns carried comments which indicated that the job market was much tougher than had been expected. Those who found jobs frequently stated "The jobs are there if you want them and are willing to accept what the company offers." However, none of the unemployeds indicated that they had turned down jobs solely on the basis of salary. Most unemployeds said there were no jobs to be found. In making decisions as to what constituted an equitable salary offer, students used a variety of sources which included; fellow graduates and friends, placement offices and professors, and Chemical and Engineering News.

Briefly, the salient points of the survey are as follows: Starting Salaries are once again moving upward after a downturn last year. However, Ph.D. chemists salaries are still turning downward and MS chemical engineers have experienced their first salary drop

in more than 10 years. Let's hope that this does not mean that employers are filling jobs by setting lower degree requirements and hence lower salaries. The 1972 BS Chemist is starting at a salary level that was acceptable for the 1968 graduate. As we know, inflation continues, but for BS Chemists, it seems that salaries have retrogressed. Compensation studies indicate, by the way, that if you happen to be one of those unfortunates who enter the job market at the wrong time, your wage/experience curve is poorer throughout your career. (i.e. when compared to someone else who started in a "good year" just before or after your initial entry to the field.)

For M.S. chemists salaries held firm. Last year, they dropped precipitously.

As usual, industry hired the larger share of new graduates and paid the best salaries. Government salaries, which have been on the rise in the past several years trying to "catch" those of industry, are second best in this year's survey. The abundance of chemists looking for jobs has allowed the Federal government to change its policy of awarding premium pay to scientists or technologists in short supply.

Women chemists' salaries are in general lower than men's and this has been reaffirmed by the current survey. While there seems to be a move among employers to have affirmative action programs with regard to hiring minorities and women, it has not evidenced itself as part of our survey results. Unemployment is higher for

women too. To assist in minority hiring, the U.S. Dept. of Labor has provided a Directory of Minority College Graduates for 1971-72. This is probably the best source for minority data for the year. The ACE study, The Black College Freshman: Characteristics and Trends provides interesting comparisons of demographic data between and among several ethnic and racial groups.

Our results confirm results found elsewhere that women graduate at a younger age and tend to pursue their education in a continuous pattern. Men are more apt to leave academia and return for more schooling later on. Because women engineers are few in number, we have not provided all the analyses for engineers that we provide for chemists.

With regard to geographic distributions it is difficult to apply significance to each of the data items evaluated. School location and unemployment levels in the Starting Salary Survey are not distributed in the same way that unemployment and addresses are distributed for chemists in general. When a student reports as "unemployed" he is not necessarily reporting from an area in which jobs might be found; i.e. leaving school and being unemployed results in a different geographic distribution of unemployeds than being fired or laid off by a chemical concern.

30% of BS chemists indicate they will undertake graduate study in another field. BS engineers, on the other hand, are doing this at the rate of 9%. While salaries are higher for engineers, their unemployment rates are higher at each degree level.

When we compared ACS certified graduates to non-certified grads, we noticed that salaries for employed certified grads were better. For those leaving chemistry to do graduate work in another field, the rate was 43% for non-certified and 18% for certifieds. Conversely, for those going on to graduate work in chemistry, the rate was 14% for non-certifieds and 34% for certifieds. Graduate work accounts for more than 55% of the plans for this year's graduates. Medicine is the most popular other field of study for chemists. For engineers, law and "others" such as business administration are of higher interest than medicine. Even at the Ph.D. level, we have several chemists moving to study medicine whereas only 1 Ph.D. engineer indicated any change in discipline.

The data in the attached tables is as comprehensive as we could permit based on survey returns. It frequently occurs, in surveys of this sort, that not every box in a matrix of data can be filled. In these cases, the cause is usually insufficient data. This does not mean that the Department of Manpower Studies considers these areas as closed. On the contrary, we welcome discussion or suggestions on both what our results offer in the way of data and what they omit.

Table 1

Professional Status by Sex & Field

	Chemists						Chemical Engineers					
	Overall		Male		Female		Overall		Male		Female	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Full-time employed	26.4	1046	25.0	803	32.9	236	52.5	873	52.6	850	54.8	17
Part-time employed	3.3	132	3.1	99	4.5	32	1.5	25	1.5	25	-	-
Employed outside field	6.0	237	5.4	174	8.6	62	5.7	95	5.4	88	16.1	5
Unemployed	4.9	195	4.4	142	7.3	52	8.7	145	8.7	140	9.7	3
Grad.asst./postdoctorals	27.8	1102	29.5	947	21.1	151	12.4	207	12.6	203	12.9	4
Graduate School	4.4	173	4.4	142	3.8	27	4.6	76	4.6	74	3.2	1
Grad. school other fields	22.5	891	22.8	733	20.6	148	8.2	137	8.3	134	3.2	1
Military	3.4	133	4.1	131	0.1	1	5.3	89	5.3	86	-	-
Peace Corps, etc.	0.3	12	0.4	12	-	-	0.5	8	0.5	8	-	-
No Report	1.0	40	1.0	31	1.1	8	0.5	9	0.6	9	-	-
TOTAL		3961		3214		717		1664		1617		31

NOTE: This table shows the employment or educational status of respondents. Only one choice per individual is tallied. Precedence in multi-choice replies were (1) military/Peace Corps, (2) graduate school, (3) employed, (4) unemployed. Thus a person who indicated unemployed and military service would appear in this table in military service. A person who indicated graduate school and unemployed would be a graduate student. If a person indicated graduate school and employment, other data would be checked (e.g.,salary) to give a single classification. See table 3 to examine students who indicated unemployment also.

Table 2

Professional Status by Sex, Degree and Field

	B.S. Chemists						M.S. Chemists						Ph.D. Chemists					
	Male		Female		N.R.		Male		Female		N.R.		Male		Female		N.R.	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Full-time employed	17.9	396	26.8	146	19.0	4	38.1	148	57.4	66	33.3	1	41.8	259	41.4	24	33.3	2
Part-time employed	3.9	85	4.8	26	-	-	1.3	5	3.5	4	-	-	1.5	9	3.4	2	16.7	1
Employed outside field	6.4	141	9.4	51	4.8	1	5.7	22	5.2	6	-	-	1.8	11	8.6	5	-	-
Unemployed	4.9	108	7.4	40	4.8	1	3.9	15	7.0	8	-	-	3.1	19	6.9	4	-	-
Grad.Asst./postdoctorals	24.4	539	21.3	116	9.5	2	30.7	119	12.2	14	-	-	46.7	289	36.2	21	33.3	2
Graduate school	5.4	119	3.3	18	9.5	2	5.9	23	7.8	9	66.7	2		-	-	-	-	-
Grad. School other fields	31.4	693	25.9	141	47.6	10	6.4	25	5.2	6	-	-	2.4	15	1.7	1	-	-
Military	4.5	99	0.2	1	4.8	1	4.9	19	-	-	-	-	2.1	13	-	-	-	-
Peace Corps, etc.	0.5	11	-	-	-	-	0.3	1	-	-	-	-		-	-	-	-	-
No Report	0.7	16	0.9	5	-	-	2.8	11	1.7	2	-	-	0.6	4	1.7	1	16.7	1
TOTAL		2207		544		21		388		115		3		619		58		6

	B.S. Chemical Engineers						M.S. Chemical Engineers					
	Male		Female		N.R.		Male		Female		N.R.	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Full-time employed	48.9	588	53.6	15	35.7	5	57.4	166	66.7	2	50.0	1
Part-time employed	1.8	22	-	-	-	-	0.7	2	-	-	-	-
Employed outside field	6.6	79	17.9	5	14.3	2	1.7	5	-	-	-	-
Unemployed	10.1	121	10.7	3	7.1	1	4.5	13	-	-	50.0	1
Grad.asst./postdoctorals	11.1	134	10.7	3	-	-	18.3	53	33.3	1	-	-
Graduate School	4.9	59	3.6	1	7.1	1	5.2	15	-	-	-	-
Grad. School other fields	9.4	113	3.6	1	14.3	2	6.9	20	-	-	-	-
Military	6.2	74	-	-	21.4	3	3.5	10	-	-	-	-
Peace Corps, etc.	0.7	8	-	-	-	-	-	-	-	-	-	-
No Report	0.3	4	-	-	-	-	1.7	5	-	-	-	-
TOTAL		1202		28		14		289		3		2

NOTE: See note on Table 1 for employment or educational status of respondents.
Ph.D. Chemical Engineers had insufficient data to break out.

Table 3

Unemployed By Sex, Degree & Field

	Chemists									Chemical Engineers						
	Bachelors			Masters			Doctors			Bachelors			Masters			Doctors
	M	F	NR	M	F	NR	M	F	NR	M	F	NR	M	F	NR	M
Unemployed	108	40	1	15	8	-	19	4	-	121	3	1	13	-	1	6
Grad.asst./postdoctorals	13	4	-	1	-	-	4	-	-	14	-	-	1	-	-	-
Graduate School	10	4	-	17	-	-	-	-	-	6	-	-	4	-	-	-
Grad. School other fields	19	4	-	-	-	-	5	1	-	13	-	-	4	-	-	-
TOTAL UNEMPLOYMENT	150	52	1	33	8	-	28	5	-	154	3	1	22	-	1	6
TOTAL SAMPLE	2207	544	21	388	115	3	619	58	6	1202	28	14	289	3	2	126
% of Sample	6.8	9.6	4.8	8.5	7.0		4.5	8.6		12.8	10.7	7.1	7.6		50.0	4.8

NOTE: This table shows all respondents who indicated unemployment. Thus a person could indicate they were going to graduate school but they also considered themselves unemployed. We checked this so we could compare the 1971 survey to the current survey.

Table 4 COMPARISON OF ACS CERTIFIED AND NON-CERTIFIED B.S. CHEMISTRY GRADUATES

Professional Status

	Certified		Non-certified	
	%	No.	%	No.
Full-time employed inexp.	15.4	207	12.6	179
Full-time employed experienced	5.9	79	5.7	81
Part-time employed	4.2	56	3.9	55
Employed outside field	5.4	73	8.4	120
Unemployed	5.6	75	5.2	74
Grad. asst./postdoctorals	34.3	462	13.7	195
Graduate school	6.2	84	3.9	55
Graduate school other fields	17.4	234	42.8	610
Military	4.8	64	2.6	37
Peace Corps, etc.	-	-	0.8	11
No Report	0.9	12	0.6	9
TOTAL		1346		1426

Median Starting Salary By Employer Classification

	Certified			Non-certified		
	%	No.	Median Salary	%	No.	Median Salary
Industry	65.4	134	9,000	46.3	82	8,860
College/University	8.3	17	7,000	6.2	11	6,980
High School	3.9	8	7,000	24.3	43	7,140
Government	9.8	20	8,300	10.2	18	7,319
Research Institution	10.2	21	7,500	12.4	22	7,200
Other	1.5	3	8,300	0.6	1	-
No Report	1.0	2	-	-	-	-
Overall		205	8,500		177	7,800

NOTE: ACS certification is granted by the ACS Committee on Professional Training based on criteria determined by them. Departments are reviewed regularly; uncertified departments may request certification which may or may not be granted after investigation and review.

Table 5

Graduate School Other Fields By Degree and Field

	Chemists						Chemical Engineers			
	Bachelors		Masters		Doctors		Bachelors		Masters	
	%	No.	%	No.	%	No.	%	No.	%	No.
Medicine	60.4	541	19.6	9	40.0	8	13.2	21	17.4	4
Dentistry	8.6	77	2.2	1	-	-	1.3	2	-	-
Pharmacy	2.2	20	10.9	5	-	-	0.6	1	-	-
Law	2.8	25	8.7	4	15.0	3	14.5	23	4.3	1
Other Physical Science	1.6	14	6.5	3	20.0	4	2.5	4	-	-
Other Biological Science	7.3	65	10.9	5	5.0	1	1.9	3	13.0	3
Other	15.4	138	41.3	19	15.0	3	55.3	88	56.5	13
No Report	1.7	15	-	-	5.0	1	10.7	17	8.7	2
TOTAL		895		46		20		159		23

NOTE: Respondents indicating graduate study in a field other than chemistry or chemical engineering.

Table 6

Graduate Students By Sex, Degree and Field

	Chemists									Chemical Engineers						
	Bachelors			Masters			Doctors			Bachelors			Masters			Doctors
	Male	Female	N.R.	Male	Female	N.R.	Male	Female	No.R.	Male	Female	N.R.	Male	Female	N.R.	Male
Median graduate stipend	$3300	$3360	-	$3400	$3600	-	$8000	$7440	-	$3600	$3700	-	$3700	-	-	$9600
Grad. asst./postdoctorals	539	116	2	119	14	-	289	21	2	134	3	-	53	1	-	16
Graduate school	119	18	2	23	9	2	-	-	-	59	1	1	15	-	-	1
Grad. school other fields	693	141	10	25	6	-	15	1	-	113	1	2	20	-	-	-
Full-time employed	50	6	-	10	5	-	47	6	-	36	-	-	8	-	-	3
Sub-professionally employed	22	5	-	6	-	-	2	1	-	18	1	-	-	-	-	-
TOTAL GRADUATE STUDENTS	1423	286	14	183	34	2	353	29	2	360	6	3	96	1	-	20
TOTAL SAMPLE	2207	544	21	388	115	3	619	58	6	1202	28	14	289	3	2	126
% of Sample	64.5	52.6	66.7	47.2	29.6	66.7	57.0	50.0	33.3	30.0	21.4	21.4	33.2	33.3	-	15.9

NOTE: Insufficient data on female Ph.D. Chemical Engineers.

Table 7 Chemists' Starting Salary By Sex and Employer Classification

	Bachelors						Masters						Doctors					
	Male			Female			Male			Female			Male			Female		
	%	No.	Median Salary	%	No.	Median Salary	%	No.	Median Salary	%	No.	Median Salary	%	No.	Median Salary	%	No.	Median Salary
Industry	63.6	166	9,000	40.2	47	9,600	50.0	37	10,500	18.6	8	9,500	46.4	65	15,600	14.3	1	-
College/Univ.	6.9	18	7,200	7.7	9	6,600	16.2	12	9,500	37.2	16	8,100	25.7	36	10,800	42.9	3	10,920
High school	11.1	29	7,200	18.8	22	7,000	14.9	11	10,500	14.0	6	9,300	2.1	3	15,000	14.3	1	-
Government	10.3	27	7,800	9.4	11	7,613	12.2	9	11,000	14.0	6	10,000	16.4	23	13,000	28.6	2	-
Research Inst.	6.9	18	8,000	21.4	25	7,200	6.8	5	9,020	14.0	6	9,700	7.1	10	11,000	-	-	-
Other	0.8	2	-	1.7	2	-	-	-	-	2.3	1	-	2.1	3	11,400	-	-	-
No Report	0.4	1	-	0.9	1	-	-	-	-	-	-	-	-	-	-	-	-	-
OVERALL		261	8,400		117	7,800		74	10,500		43	8,700		140	14,000		7	10,920

Table 8

Median Starting Salary By Degree and Field

	Chemists			Chemical Engineers		
	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.
10%	6,360	7,350	9,200	9,600	11,000	12,000
25%	7,200	8,400	10,800	10,600	12,000	15,300
Median	8,300	9,600	13,309	11,000	12,500	16,300
75%	9,468	11,000	15,750	11,400	13,000	16,900
90%	10,200	12,000	16,500	11,700	13,200	17,400
Number	382	118	149	465	96	55

Table 9

Median Starting Salary By Employer

	Chemists			Chemical Engineers		
	B. S.	M. S.	Ph.D.	B. S.	M. S.	Ph.D.
Industry						
Median	9,000	10,500	15,600	11,000	12,600	16,500
Number	216	45	68	434	90	46
Percent	56.5	38.1	45.6	93.3	93.8	83.6
College/Univ.						
Median	7,000	8,100	10,800	-	-	14,000
Number	28	28	39	-	1	4
Percent	7.3	23.7	26.2	-	10	7.3
High School						
Median	7,100	9,300	15,000	-	-	-
Number	51	17	4	-	-	-
Percent	13.4	14.4	2.7	-	-	-
Government						
Median	7,800	10,000	13,000	9,053	12,150	-
Number	38	15	25	25	5	2
Percent	9.9	12.7	16.8	5.4	5.2	3.6
Research Inst.						
Median	7,367	9,200	11,000	-	-	-
Number	43	12	10	2	-	2
Percent	11.3	10.2	6.7	0.4	-	3.6
Other						
Median	8,300	-	11,400	-	-	-
Number	4	1	3	2	-	1
Percent	1.0	0.8	2.0	0.4	-	1.8
No Report						
Median	-	-	-	-	-	-
Number	2	-	-	2	-	-
Percent	0.5	-	-	0.4	-	-
TOTAL	382	118	149	465	96	55

Table 10

Median Starting Salary By Industrial Specialty

	Chemists			Chemical Engineers		
	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.
Overall						
Median	9,000	10,500	15,600	11,000	12,600	16,500
Number	216	45	68	434	90	46
Agriculture & Food						
Median	8,500	8,000	15,000	11,000	-	-
Number	19	3	3	18	1	1
Percent	8.8	6.7	4.4	4.1	1.1	2.2
Chemicals						
Median	9,720	11,000	14,400	11,040	12,600	16,550
Number	24	5	11	84	18	6
Percent	11.1	11.1	16.2	19.4	20.0	13.0
Electronics						
Median	8,700	11,400	17,000	10,500	-	-
Number	7	4	3	7	-	1
Percent	3.2	8.9	4.4	1.6	-	2.2
Environmental						
Median	8,000	-	-	10,740	12,000	-
Number	19	2	1	14	6	1
Percent	8.8	4.4	1.5	3.2	6.7	2.2
Metals						
Median	8,860	-	-	10,200	-	-
Number	9	1	1	7	-	-
Percent	4.2	2.2	1.5	1.6	-	-
Paints & Coating						
Median	9,000	10,000	-	10,800	-	-
Number	20	5	1	10	-	1
Percent	9.2	11.1	1.5	2.3	-	2.2

Table 10

Median Starting Salary By Industrial Specialty Cont'd

	Chemists			Chemical Engineers		
	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.
Paper						
Median	10,400	-	-	12,000	-	-
Number	4	1	2	4	2	-
Percent	1.8	2.2	2.9	0.9	2.2	-
Petroleum						
Median	9,600	-	-	11,400	12,900	17,000
Number	9	1	2	79	20	16
Percent	4.2	2.2	2.9	18.2	22.2	34.8
Pharmaceutical						
Median	8,700	10,500	15,000	11,500	13,500	-
Number	28	8	5	4	6	1
Percent	13.0	17.8	7.4	0.9	6.7	2.2
Photographic						
Median	10,200	-	15,750	11,128	-	-
Number	9	1	5	10	1	1
Percent	4.2	2.2	7.4	2.3	1.1	2.2
Plastics						
Median	8,700	-	-	11,000	11,400	-
Number	10	1	2	20	3	2
Percent	4.6	2.2	2.9	4.6	3.3	4.3
Rubber						
Median	9,600	10,920	-	10,800	-	-
Number	6	4	1	19	-	2
Percent	2.8	8.9	1.5	4.4	-	4.3
Soap, Cosm., Deter.						
Median	8,400	-	15,500	11,220	12,600	-
Number	9	-	5	16	6	1
Percent	4.2	-	7.4	3.7	6.7	2.2
Textiles & Synth.						
Median	9,000	-	16,000	11,280	13,000	16,500
Number	4	1	4	35	4	4
Percent	1.8	2.2	5.9	8.1	4.4	8.7

Table 10

Median Starting Salary By Industrial Specialty cont'd

	Chemists			Chemical Engineers		
	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D
Utilities						
Median	10,164	-	16,500	10,600	-	-
Number	6	1	3	17	2	1
Percent	2.8	2.2	4.4	3.9	2.2	2.2
Other						
Median	9,000	10,300	16,000	10,800	12,000	15,900
Number	33	7	19	90	21	8
Percent	15.3	15.6	27.9	20.7	23.3	17.4

Table 11 Median Starting Salary By Field of Chemical Specialty

	Chemists	
	M.S.	Ph.D.
Overall		
Median	9,600	13,309
Number	118	149
Analytical		
Median	9,655	15,000
Number	21	26
Percent	17.8	17.4
Biochemistry		
Median	8,500	9,500
Number	13	3
Percent	11.0	2.0
Inorganic		
Median	10,000	12,000
Number	16	16
Percent	13.6	10.7
Organic		
Median	9,600	14,000
Number	43	49
Percent	36.4	32.9
Physical		
Median	10,500	13,500
Number	12	51
Percent	10.2	34.2
Polymer		
Median	11,400	-
Number	4	1
Percent	3.4	0.7
Other		
Median	10,000	16,000
Number	7	3
Percent	5.9	2.0
No Report		
Median	-	-
Number	2	-
Percent	1.7	

Table 12 Median Starting Salary by Geographic Location

	B.S. Chemists	Ph. D. Chemists	B.S. Ch. E.
Overall			
Median	8,300	13,309	11,000
Number	379	148	465
Pacific			
Median	8,500	11,753	11,020
Number	37	12	42
Percent	9.8	8.1	9.0
Mountain			
Median	8,400	13,309	10,800
Number	17	4	21
Percent	4.5	2.7	4.5
West North Central			
Median	8,100	11,000	10,800
Number	27	8	32
Percent	7.1	5.4	6.9
West South Central			
Median	7,500	12,000	11,100
Number	26	14	73
Percent	6.9	9.5	15.7
East North Central			
Median	8,500	14,500	11,000
Number	114	33	112
Percent	30.1	22.3	24.1
East South Central			
Median	7,319	12,000	10,980
Number	16	4	21
Percent	4.2	2.7	4.5
Middle Atlantic			
Median	8,500	15,600	11,000
Number	71	33	88
Percent	18.7	22.3	18.9
South Atlantic			
Median	7,500	13,500	11,100
Number	50	24	63
Percent	13.2	16.2	13.5
New England			
Median	7,000	11,600	11,000
Number	21	16	13
Percent	5.5	10.8	2.8

Table 13

Graduate Students By Age, Sex, Degree and Field

	B.S. Chemists						B.S. Chemical Engineers					
	Male		Female		Overall		Male		Female		Overall	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
19	0.2	4	0.2	1	0.2	5	-	-	-	-	-	-
20	1.0	23	2.3	14	1.3	37	0.6	7	-	-	0.6	7
21	19.3	425	21.0	114	19.6	539	15.1	182	21.4	6	15.3	188
22	37.4	825	61.0	332	42.1	1,157	33.1	398	50.0	14	33.5	412
23	10.1	224	4.0	22	8.9	246	18.7	225	17.9	5	18.7	230
24	3.3	73	2.2	12	3.1	85	3.5	42	7.1	2	3.6	44
25	2.0	44	0.4	2	1.7	46	1.6	19	-	-	1.5	19
26	2.0	45	0.4	2	1.7	47	1.7	21	-	-	1.7	21
27	1.7	38	0.2	1	1.4	39	1.0	12	-	-	1.0	12
28	1.0	21	-	-	0.8	21	0.6	7	3.6	1	0.7	8
29	0.8	17	0.6	3	0.7	20	0.7	8	-	-	0.7	8
30-34	1.3	29	0.2	1	1.1	30	0.8	10	-	-	0.8	10
35-39	0.2	4	0.4	2	0.2	6	0.2	2	-	-	0.2	2
40-49	0.2	5	0.2	1	0.2	6	0.2	2	-	-	0.2	2
Over 50	-	1	-	-	-	1	-	-	-	-	-	-
No Report	19.4	429	6.8	37	16.9	466	22.2	267	-	-	21.7	267
Total		2,207		544		2,751		1,202		28		1,230

Table 13 Graduate Students By Age, Sex, Degree and Field Cont'd

	M. S. Chemists						M. S. Chemical Engineers					
	Male		Female		Overall		Male		Female		Overall	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
21	0.5	2	4.3	5	1.4	7	-	-	-	-	-	-
22	3.1	12	3.5	4	3.2	16	5.5	16	-	-	5.5	16
23	6.7	26	9.6	11	7.4	37	16.3	47	33.3	1	16.4	48
24	12.4	48	18.3	21	13.7	69	13.8	40	33.3	1	14.0	41
25	15.2	59	12.2	14	14.5	73	13.8	40	33.3	1	14.0	41
26	10.1	39	9.6	11	9.9	50	6.9	20	-	-	6.8	20
27	5.9	23	11.3	13	7.2	36	4.8	14	-	-	4.8	14
28	5.4	21	3.5	4	5.0	25	6.6	19	-	-	6.5	19
29	5.9	23	4.3	5	5.6	28	4.2	12	-	-	4.1	12
30	2.8	11	1.7	2	2.6	13	3.1	9	-	-	3.1	9
31	2.1	8	2.6	3	2.2	11	0.3	1	-	-	0.3	1
32	2.3	9	2.6	3	2.4	12	0.7	2	-	-	0.7	2
33	1.8	7	-	-	1.4	7	-	-	-	-	-	-
34	1.3	5	-	-	1.0	5	-	-	-	-	-	-
35	1.0	4	1.7	2	1.2	6	0.3	1	-	-	0.3	1
36-39	0.8	3	-	-	0.6	3	0.7	2	-	-	0.7	2
40-49	1.0	4	2.6	3	1.4	7	0.3	1	-	-	0.3	1
Over 50	0.3	1	-	-	0.2	1	0.3	1	-	-	0.3	1
No Report	21.4	83	12.2	14	19.3	97	22.1	64	-	-	21.9	64
Total		388		115		503		289		3		292

Table 13 Graduate Students By Age, Sex, Degree and Field Cont'd

	Ph. D. Chemists						Ph. D. Chemical Engineers					
	Male		Female		Overall		Male		Female		Overall	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
23	0.2	1	-	-	0.1	1	-	-	-	-	-	-
24	0.5	3	1.7	1	0.6	4	-	-	-	-	-	-
25	2.8	17	5.2	3	3.0	20	2.4	3	-	-	2.4	3
26	8.2	51	6.9	4	8.1	55	9.5	12	-	-	9.5	12
27	19.2	119	10.3	6	18.5	125	15.9	20	-	-	15.9	20
28	13.7	85	22.4	13	14.5	98	7.9	10	-	-	7.9	10
29	9.5	59	15.5	9	10.0	68	8.7	11	-	-	8.7	11
30	7.0	43	3.5	2	6.6	45	7.1	9	-	-	7.1	9
31	5.5	34	3.5	2	5.3	36	5.6	7	-	-	5.6	7
32	2.8	17	-	-	2.5	17	2.4	3	-	-	2.4	3
33	2.4	15	5.2	3	2.7	18	0.8	1	-	-	0.8	1
34	0.8	5	5.2	3	1.2	8	4.8	6	-	-	4.8	6
35	1.0	6	3.5	2	1.2	8	1.6	2	-	-	1.6	2
36	0.5	3	-	-	0.4	3	3.2	4	-	-	3.2	4
37	0.8	5	1.7	1	0.9	6	0.8	1	-	-	0.8	1
38	1.1	7	1.7	1	1.2	8	-	-	-	-	-	-
39	0.6	4	1.7	1	0.7	5	-	-	-	-	-	-
40-49	1.1	7	6.9	4	1.6	11	2.4	3	-	-	2.4	3
Over 50	-	-	1.7	1	0.1	1	-	-	-	-	-	-
No Report	22.3	138	3.5	2	20.7	140	27.0	34	-	-	27.0	34
Total-		619		58		677		126		-		126