



**1976 SURVEY REPORT**

**STARTING SALARIES AND EMPLOYMENT STATUS OF  
CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES**

**Office of Manpower Studies  
American Chemical Society  
Washington, D.C.**



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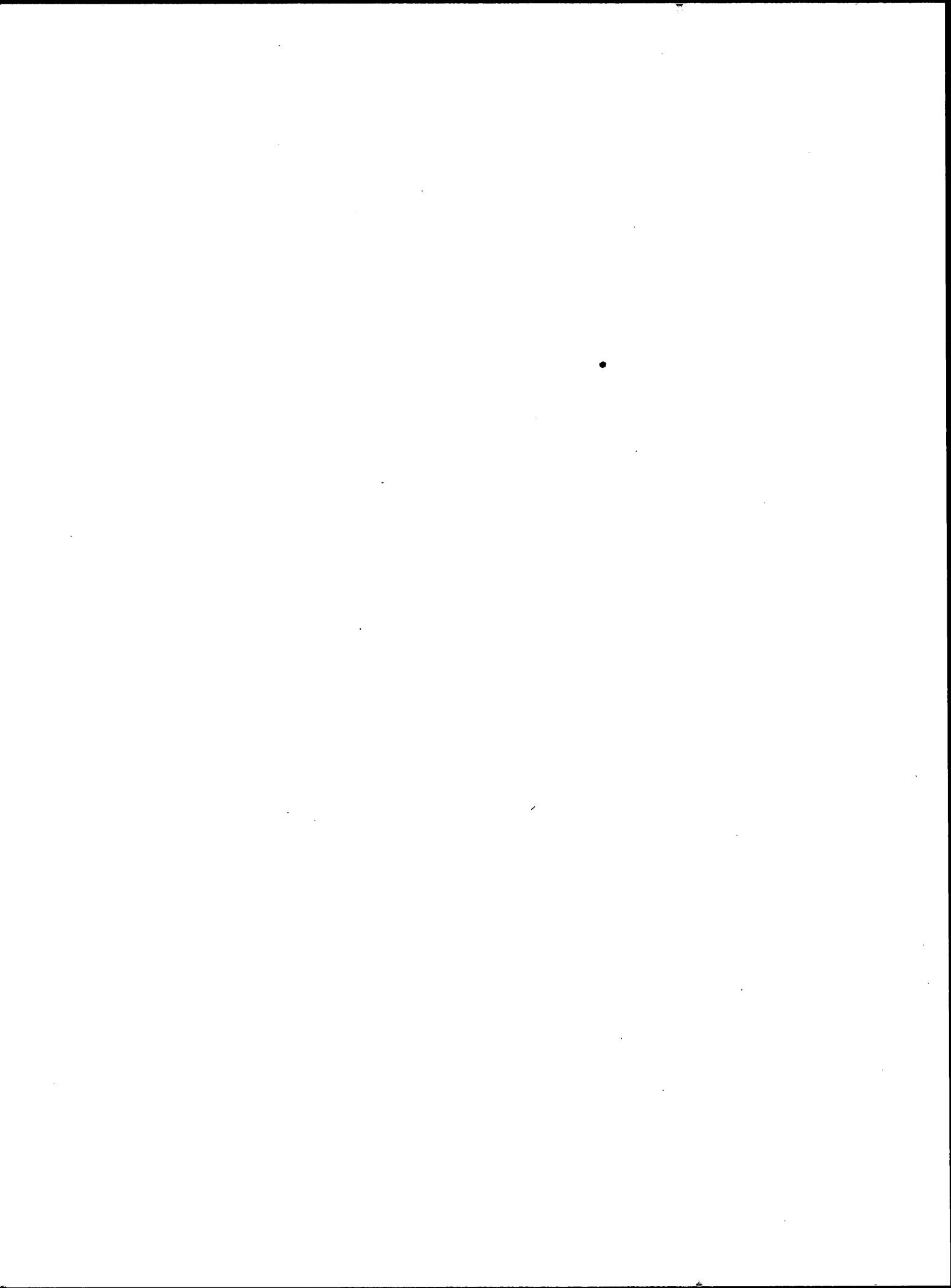


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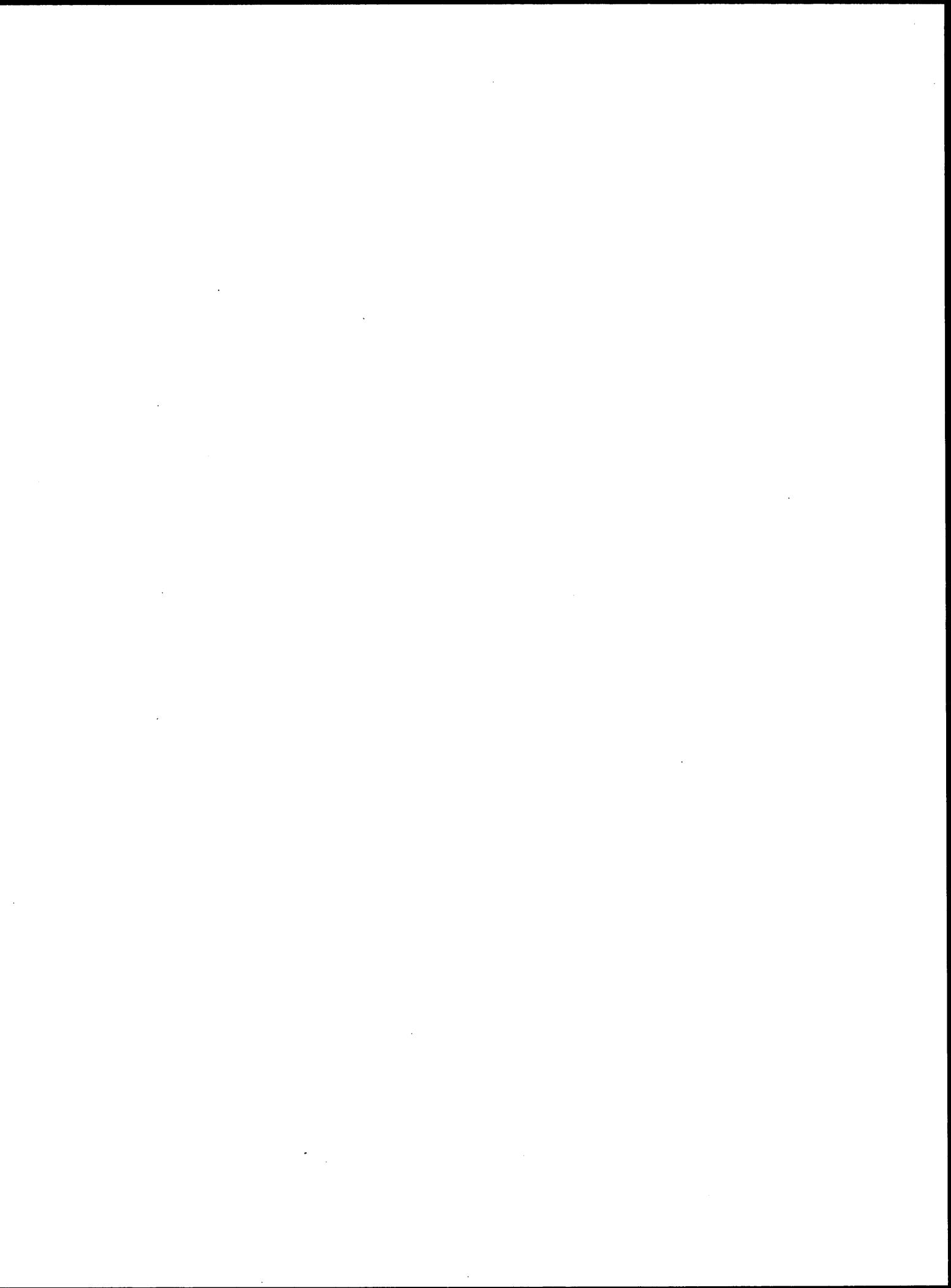
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## SUMMARY OF FINDINGS

### SALARIES

Mean starting salaries for chemists have gone up from 1975 at all three degree levels, but only the bachelor's level salaries have increased by more than the consumer price index, which went up by 5.6% from August 1975 to August 1976. Table 1 indicates that the increases were:

for the B.S., 9.6%, or in constant dollars 4.0%,  
for the M.S., 5.2%, or in constant dollars -0.4%,  
for the Ph.D., 5.1%, or in constant dollars -0.5%.

Chemical engineers enjoy much higher salaries than do chemists, but this year the percent gains and even the absolute gains were smaller for chemical engineers than for chemists at the bachelor's and Ph.D. levels. Table 2 shows that increases in starting salaries for chemical engineers were:

for the B.S., 6.3%, or in constant dollars 0.7%,  
for the M.S., 7.1%, or in constant dollars 1.5%,  
for the Ph.D., 0.3%, or in constant dollars -5.3%.

For master's and Ph.D. level chemists, the availability of information on specialties allows a comparison which is free of effects of year-to-year shifts in specialties of new graduates. This procedure gives an increase for M.S. chemists of 6.3%, from \$11,589 to \$12,320. For Ph.D. chemists the increase was 5.2%, from \$16,280 to \$17,119.

### EMPLOYMENT

The increases in starting salaries seem to indicate a relative improvement in the chemistry job market as compared with the one for chemical engineers. It may be surprising, therefore, to note that Table 3 shows an improvement in the employment rate for chemical engineers at the bachelor's and master's levels, and a deterioration in the employment rate for chemists at the master's and Ph.D. levels.

TABLE 1

STARTING YEARLY SALARIES OF INEXPERIENCED FULL-TIME EMPLOYED CHEMISTRY GRADUATES  
 by Degree: Summer of 1975 and Summer of 1976

Salaries	D E G R E E L E V E L					
	Bachelor's		Master's		Ph.D.	
	1975	1976	1975	1976	1975	1976
90th Percentile	\$12,000	\$13,620	\$14,000	\$15,300	\$19,500	\$20,100
75th Percentile	11,400	12,500	13,200	14,300	18,400	19,200
50th Percentile	10,000	10,800	12,000	12,400	17,000	18,300
25th Percentile	8,500	9,280	10,000	10,000	15,000	15,600
10th Percentile	7,500	8,200	9,150	9,000	11,800	11,600
Mean	9,911	10,860	11,715	12,320	16,287	17,119
Count	399	436	84	90	148	150
Std. Dev.	1,843	2,205	2,099	2,602	2,809	3,250

TABLE 2

STARTING YEARLY SALARIES OF INEXPERIENCED FULL-TIME EMPLOYED CHEMICAL ENGINEERING GRADUATES  
 by Degree: Summer of 1975 and Summer of 1976

Salaries	Bachelor's		Degree Level		Ph.D. 1976
	1975	1976	1975	1976	
90th Percentile	\$15,300	\$16,200	\$16,800	\$17,500	\$21,000
75th Percentile	15,000	15,700	16,200	17,040	21,000
50th Percentile	14,400	15,420	15,600	16,620	20,700
25th Percentile	13,900	15,000	14,500	16,000	19,000
10th Percentile	13,000	14,000	13,800	15,600	18,000
Mean	14,325	15,225	15,342	16,426	19,877
Count	405	524	83	90	48
Std. Dev.	1,039	1,025	1,417	1,250	1,633
					2,084

TABLE 3

## EMPLOYMENT STATUS OF CHEMISTRY AND CHEMICAL ENGINEERING GRADUATES BY DEGREE

Summer of 1975 and Summer of 1976

Major and Employment Status	D E G R E E L E V E L					
	Bachelor's		Master's		Ph.D.	
	1975	1976	1975	1976	1975	1976
<b>CHEMISTRY</b>						
Full-time employed:						
In chemistry or chemical engineering	22.6%	19.7%	40.8%	42.9%	46.0%	43.7%
Outside chemistry or chemical engineering	6.9	7.9	8.0	5.7	2.1	2.4
Postdoctoral/grad. asst./other fellowship	31.2	31.6	36.6	34.1	47.5	48.7
Military/Peace Corps, etc.	2.7	1.6	2.1	1.0	1.5	0.4
Unable to obtain full-time employment	8.5	7.3	4.5	5.4	2.1	3.4
Not seeking full-time employment	28.0	31.8	8.0	10.9	0.8	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of responses	2,249	2,970	377	387	474	503
<b>CHEMICAL ENGINEERING</b>						
Full-time employed:						
In chemistry or chemical engineering	65.4%	71.4%	73.8%	64.1%	91.3%	85.9%
Outside chemistry or chemical engineering	5.7	4.1	3.6	3.2	2.2	0.0
Postdoctoral/grad. asst./other fellowship	17.0	15.4	13.7	25.5	5.4	12.9
Military/Peace Corps, etc.	1.1	1.4	0.6	0.9	0.0	0.0
Unable to obtain full-time employment	5.3	3.2	2.4	1.4	1.1	1.2
Not seeking full-time employment	5.7	4.5	6.0	5.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of responses	742	910	168	220	92	85

TABLE A-1

POSTGRADUATION STATUS OF CHEMISTS  
BY HIGHEST DEGREE EARNED AND SEX

EMPLOYMENT STATUS	BACHELORS		MASTERS		PHD	
	WOMEN	ROW TOTAL	WOMEN	ROW TOTAL	WOMEN	ROW TOTAL
FULLTIME IN CHEM #%	406 17.9	179 25.3	585 19.7	123 41.1	43 48.9	195 42.9
FULLTIME NONCHEM	174 7.7	61 8.6	235 7.9	20 6.7	2 2.3	22 5.7
POSTDOC, GRADASST	734 32.4	205 29.0	939 31.6	105 35.1	27 30.7	132 34.1
MILITARY,VISTA	41 1.8	7 1.0	48 1.6	4 1.3	0 0.0	4 1.0
SEEKING EMPLOYMT	157 6.9	61 8.6	218 7.3	14 4.7	7 8.0	21 5.4
NOT SEEKING EMPL	751 33.2	154 27.4	945 31.8	33 11.0	9 10.2	42 10.9
COLUMN TOTAL	2263 100.0	707 100.0	2970 100.0	299 100.0	88 100.0	387 100.0
PLANS FOR FURTHER STUDIES THIS FALL						
NO RESPONSE %	15 0.7	6 0.8	21 0.7	0 0.7	0 0.0	2 0.5
HAVE PLANS	1709 75.3	485 68.5	2194 73.7	179 59.9	42 47.7	221 57.1
HAVE NO PLANS	545 24.0	217 30.6	762 25.6	118 39.5	46 52.3	164 42.4
COLUMN TOTAL	2269 100.0	708 100.0	2977 100.0	299 100.0	88 100.0	387 100.0
50.4 100.0						

TABLE A-2

## PLANS FOR FURTHER STUDIES

OF UNEMPLOYED CHEMISTS

BY HIGHEST DEGREE EARNED AND SEX

PLANS FOR FURTHER STUDIES THIS FALL		SEEKING EMPLOYMT			NOT SEEKING EMPLYMNT		
		IMEN	WOMEN	ROW TOTAL	IMEN	WCWEN	ROW TOTAL
BACHELORS							
NO	RESPONSE %	5	3	8	2	0	2
HAVE PLANS		35	6	44	700	176	876
		22.3	14.8	20.2	93.2	90.7	92.7
HAVE NO PLANS		117	46	166	49	18	67
		74.5	80.3	76.1	6.5	9.3	7.1
COLUMN TOTAL		157	61	218	751	194	945
		100.0	100.0	100.0	100.0	100.0	100.0
MASTERS							
NO	RESPONSE %	1	0	1	3.0	0	1
HAVE PLANS		4	1	5	29	8	37
		28.6	14.3	23.8	87.9	88.9	88.1
HAVE NO PLANS		9	6	15	9.1	11.1	9.5
COLUMN TOTAL		14	7	21	33	9	42
PHD							
HAVE PLANS	%	1	0	1	100.0	33.3	5
		5.9	0.0	5.9			
HAVE NO PLANS		16	0	16	0.0	66.7	2
		94.1	0.0	94.1			28.6
COLUMN TOTAL		17	0	17	4	3	7
		100.0	0.0	100.0	100.0	100.0	100.0

TABLE A-3

## POSTGRADUATION STATUS OF CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

EMPLOYMENT STATUS	BACHELORS'			MASTERS			PHD		
	MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL
FULLTIME IN CHEM	568 69.6	82 1	650 71.4	132 63.8	5 69.2	141 64.1	70 85.4	3 100.0	73 85.9
FULLTIME NONCHEM	35 4.3	2 2.1	37 4.1	5 2.4	2 15.4	7 3.2	0 0.0	0 0.0	0 0.0
POSTDOC, GRADASST	133 16.3	7 7.4	140 15.4	54 26.1	2 15.4	56 25.5	11 13.4	0 0.0	11 12.9
MILITARY, VISTA	12 1.5	1 1.1	13 1.4	2 1.0	0 0.0	2 0.9	0 0.0	0 0.0	0 0.0
SEEKING EMPLOYMT	28 3.4	1 1.1	29 3.2	3 1.4	0 0.0	3 1.4	1 1.2	0 0.0	1 1.2
NCT SEEKING EMPL	40 4.9	1 1.1	41 4.5	11 5.3	0 0.0	11 5.0	0 0.0	0 0.0	0 0.0
COLUMN TOTAL	816 100.0	94 100.0	910 100.0	207 100.0	13 100.0	220 100.0	82 100.0	3 100.0	85 100.0
PLANS FOR FURTHER STUDIES THIS FALL									
NC RESPONSE %	6 0.7	1 1.1	0.8 0.5	1 0.0	0 0.0	1 0.5	1 1.2	0 0.0	1 1.2
HAVE PLANS	348 42.6	35 37.2	383 42.0	92 44.4	6 46.2	98 44.5	5 6.1	5 0.0	5 5.9
HAVE NO PLANS	463 56.7	58 61.7	521 57.2	114 55.1	7 53.8	121 55.0	76 92.7	3 100.0	75 92.9
COLUMN TOTAL	817 100.0	94 100.0	911 100.0	207 100.0	13 100.0	220 100.0	82 100.0	3 100.0	85 100.0

TABLE A-4

## PLANS FOR FURTHER STUDIES

OF UNEMPLOYED CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED

		SEEKING EMPLOYMT	NOT SEEKING EMPLOYMT
		#	%
BACHELORS	-----		
NO	RESPONSE	2	0.0
HAVE PLANS		2	38
HAVE NO PLANS		25	7.3
COLUMN TOTAL		29	41
		100.0	100.0

		SEEKING EMPLOYMT	NOT SEEKING EMPLOYMT
		#	%
MASTERS	-----		
HAVE PLANS		1	9
HAVE NO PLANS		2	2
COLUMN TOTAL		3	11
		100.0	100.0

		SEEKING EMPLOYMT	NOT SEEKING EMPLOYMT
		#	%
PHD	-----		
HAVE NO PLANS		1	0
COLUMN TOTAL		1	0
		100.0	0.0
		100.0	0.0

TABLE A-5

## POSTGRADUATION STATUS OF CHEMISTS

BY HIGHEST DEGREE EARNED AND CITIZENSHIP

EMPLOYMENT STATUS	BACHELORS			MASTERS			PHD		
	U.S. CITIZEN	RESIDENT VISA	OTHER VISA	U.S. CITIZEN	RESIDENT VISA	OTHER VISA	U.S. CITIZEN	RESIDENT VISA	OTHER VISA
FULLTIME IN CHEM #	578 19.8	19.0	0.0	152 43.7	6 85.7	7 23.3	201 45.7	11 29.7	7 29.2
FULLTIME NONCHEM	232 7.9	2 9.5	0.0	21 6.0	0 0.0	1 3.3	10 2.3	1 2.7	1 4.2
PCSTDCC, GRADASST	930 31.8	4 19.0	3 20.0	113 32.5	1 14.3	1 56.7	17 47.0	22 59.5	15 62.5
MILITARY, VISTA	47 1.6	0 0.0	0 0.0	3 0.9	0 0.0	1 0.0	2 3.3	0 0.5	0 0.0
SEEKING EMPLOYMT	208 7.1	5 23.8	3 20.0	21 6.0	0 0.0	0 0.0	14 3.2	2 5.4	1 4.2
NOT SEEKING EMPL	928 31.7	6 28.6	9 60.0	38 10.9	0 0.0	1 13.3	6 1.4	1 2.7	0 0.0
COLUMN TOTAL	2923 100.0	21 100.0	15 100.0	348 100.0	7 100.0	7 100.0	30 100.0	440 100.0	37 100.0
									24

## PLANS FOR FURTHER STUDIES THIS FALL

NC	RESPONSE #	0	0	0	0	0	0	1.1	2.6	0
HAVE PLANS	2161 73.8	13 61.9	15 100.0	196 56.3	2 28.6	2 73.3	22 15.9	70 15.9	6 15.8	2 8.3
HAVE NO PLANS	748 25.5	8 38.1	0 0.0	150 43.1	5 71.4	8 26.7	365 83.0	31 81.6	22 91.7	
COLUMN TOTAL	2930 100.0	21 100.0	15 100.0	348 100.0	7 100.0	30 100.0	440 100.0	38 100.0	24 100.0	

TABLE A-6

POSTGRADUATION STATUS OF CHEMICAL ENGINEERS  
BY HIGHEST DEGREE EARNED AND CITIZENSHIP

10

EMPLOYMENT STATUS	BACHELORS			MASTERS			PHD		
	U.S. CITIZEN	RESIDENT VISA	OTHER VISA	U.S. CITIZEN	RESIDENT VISA	OTHER VISA	U.S. CITIZEN	RESIDENT VISA	OTHER VISA
FULLTIME IN CHEM #	639	10	1	118	8	14	47	14	11
FULLTIME IN CHEM %	72.1	83.3	8.3	68.2	88.9	38.9	94.0	77.8	68.8
FULLTIME NONCHEM	35	1	8.3	1	6	1	0	0	0
POSTDOC, GRADASST	4.0	1	8.3	1	3.5	11.1	0.0	0.0	0.0
MILITARY, VISTA	133	1	50.0	6	37	0	50.0	18	3
SEEKING EMPLOYMT	15.0	8.3	1	21.4	0.0	1	50.0	6.0	16.7
NOT SEEKING EMPL	1	1.3	0	0	1	2	0	0	31.3
COLUMN TOTAL	886	12	12	173	9	36	50	18	16
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PLANS FOR FURTHER STUDIES THIS FALL									
NO. RESPONSE %	7	0	0	1	0	0	0	0	1
HAVE PLANS	363	9	12	69	3	25	1	0	6.3
HAVE NO PLANS	40.9	75.0	100.0	39.9	33.3	69.4	2.0	5.6	3
COLUMN TOTAL	517	3	0	103	6	11	49	17	18.8
TOTAL	58.3	25.0	0.0	59.5	1	66.7	30.6	98.0	75.0

TABLE A-7

## POSTGRADUATION STATUS

OF MINORITY CHEMISTS

BY HIGHEST DEGREE EARNED

EMPLOYMENT STATUS	BACHELORS	MASTERS	PHD	ROW TOTAL
FULLTIME IN CHEM #	27	13	20	60
FULLTIME IN CHEM %	18.4	32.5	40.0	25.3
FULLTIME NONCHEM #	10	3	3	16
FULLTIME NONCHEM %	6.8	7.5	6.0	6.8
POSTDOC, GRADASST #	38	13	25	76
POSTDOC, GRADASST %	25.9	32.5	50.0	32.1
MILITARY, VISTA #	2	1	0	3
MILITARY, VISTA %	1.4	2.5	0.0	1.3
SEEKING EMPLOYMT #	14	3	1	18
SEEKING EMPLOYMT %	9.5	7.5	2.0	7.6
NOT SEEKING EMPL #	56	7	1	64
NOT SEEKING EMPL %	38.1	17.5	2.0	27.0
COLUMN TOTAL	147	40	50	237
TOTAL	100.0	100.0	100.0	100.0

## PLANS FOR FURTHER STUDIES THIS FALL

NO	RESPONSE #	0	0	1	1
	RESPONSE %	0.0	0.0	2.0	0.4
HAVE PLANS	#	111	28	9	148
HAVE PLANS	%	75.0	70.0	18.0	62.2
HAVE NO PLANS	#	37	12	40	89
HAVE NO PLANS	%	25.0	30.0	80.0	37.4
COLUMN TOTAL		148	40	50	238
		100.0	100.0	100.0	100.0

TABLE A-8  
 POSTGRADUATION STATUS  
 OF MINORITY CHEMICAL ENGINEERS  
 BY HIGHEST DEGREE EARNED

EMPLOYMENT STATUS	BACHLORS	MASTERS	PHD	RCW TOTAL
FULLTIME IN CHEM %	26	11	11	48
	65.0	52.4	73.3	63.2
FULLTIME NONCHEM	3	1	0	4
	7.5	4.8	0.0	5.3
POSTDOC, GRADASST	5	9	3	17
	12.5	42.9	20.0	22.4
MILITARY, VISTA	2	0	0	2
	5.0	0.0	0.0	2.6
SEEKING EMPLOYMT	2	0	1	3
	5.0	0.0	6.7	3.9
NOT SEEKING EMPL	2	0	0	2
	5.0	0.0	0.0	2.6
COLUMN TOTAL	40	21	15	76
	100.0	100.0	100.0	100.0

PLANS FOR FURTHER STUDIES THIS FALL

NO	RESPONSE %	1	0	0	1
		2.5	0.0	0.0	1.3
HAVE PLANS		18	12	1	31
		45.0	57.1	6.7	40.8
HAVE NO PLANS		21	9	14	44
		52.5	42.9	93.3	57.9
COLUMN TOTAL		40	21	15	76
		100.0	100.0	100.0	100.0

TABLE A-9

 POSTGRADUATION STATUS OF B.S. CHEMISTS  
 BY CERTIFICATION STATUS

B. S. CHEMISTS			
EMPLOYMENT STATUS	CERTIFIED. <sup>1</sup>	NON-CERTIFO.	ROW TOTAL
FULLTIME IN CHEM	299 21.7	286 17.9	585 19.7
FULLTIME NONCHEM	70 5.1	165 10.3	235 7.9
POSTDOC, GRADASST	588 42.7	352 22.1	940 31.6
MILITARY, VISTA	34 2.5	14 0.9	48 1.6
SEEKING EMPLOYMT	104 7.6	114 7.1	218 7.3
NOT SEEKING EMPL	282 20.5	664 41.6	946 31.8
COLUMN TOTAL	1377 100.0	1595 100.0	2972 100.0

## PLANS FOR FURTHER STUDIES THIS FALL

NO	RESPONSE %	#	10	21
HAVE PLANS	71.5	985	1211	2196
HAVE NO PLANS	27.7	381	381	762
COLUMN TOTAL	100.0	1377	1602	2979
	100.0	100.0	100.0	100.0

<sup>1</sup>A "certified bachelor" is one who has been certified by the chemistry department chairman to the American Chemical Society, as having successfully completed the curriculum in chemistry as approved by the ACS Committee on Professional Training, and is, therefore, eligible to become a member of ACS.

TABLE A-10

**POSTGRADUATION STATUS OF M.S. AND PH.D. CHEMISTS  
BY FIELD OF HIGHEST DEGREE**

## FIELD OF ADVANCED FURTHER STUDIES OF CHEMISTS

WHO PLAN FURTHER STUDIES IN FALL, 1976

BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES	BACHELORS		MASTERS		PHD	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
		ROW TOTAL	ROW TOTAL	ROW TOTAL	ROW TOTAL	ROW TOTAL
CHEMISTRY	# %	626 36.6	177 36.5	803 36.6	128 71.5	22 52.4
OTH PHY SCI, MATH	1.7	2.9	1.9	1.7	4.2	2.4
CHEMICAL ENGRING	3.4	58	13	71	5	1
OTHER ENGRING	1.1	1.9	8	2.7	2.4	2.4
BIOCHEMISTRY	136	54	11.1	190	11	7
OTH LIFE SCIENCE	5.7	98	35	137	16.7	8.1
MEDICINE	31.3	535	125	664	8	4
DENTISTRY	5.3	90	10	100	1	0
PHARMACY	0.8	14	8	22	0.6	0.6
BUSINESS, MGMT	3.0	52	17	69	11	2
LAW	1.1	1.1	1.0	1.0	0.0	0.0
SCC SCI, HUMNTIES	0.8	13	10	23	1	0
OTHER	1.2	21	6	27	3	1
COLUMN TOTAL	1709	485	100.0	179	42	221
	100.0	100.0	100.0	100.0	100.0	100.0

TABLE A-12

FIELD OF ADVANCED FURTHER STUDIES OF CHEMICAL ENGINEERS

- WHO PLAN FURTHER STUDIES IN FALL, 1976  
BY HIGHEST DEGREE EARNED AND SEX

FIELD OF ADVANCED FURTHER STUDIES	BACHELORS			MASTERS			PHD		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
CHEMISTRY	4.1%	2.1%	5.7	1.6	0.0	1.6	1.0	0.8	1.8
OTH PHY SCI, MATH	0.3	0.0	0.3	0.1	0.0	0.1	0.0	0.1	0.1
CHEMICAL ENGRING	20.4	20	22.4	6.8	3	7.1	20.0	1	20.0
OTHER ENGRING	15	5	20	6	2	8	20.0	1	20.0
BIOCHEMISTRY	0.6	0.0	0.6	0.5	0.0	0.5	0.0	0.0	0.0
OTH LIFE SCIENCE	0.3	0.0	0.3	0.1	0	0.1	0.0	0.0	0.0
MEDICINE	4.3	0.0	4.3	1.5	2.2	3.7	2.0	0.0	2.0
PHARMACY	0.3	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0
BUSINESS, MGMT	27.0	20.0	47	10.1	15	15.3	40.0	2	40.0
LAW	1.7	2.5	4.2	1.1	0.0	1.1	0.0	0.0	0.0
SCC SCI, HUMNTIES	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
OTHER	0.6	0.0	0.6	0.5	0.0	0.5	0.0	0.0	0.0
COLUMN TOTAL	348	35	383	92	6	98	100.0	100.5	100.0

TABLE A-13

FIELD OF ADVANCED FURTHER STUDIES OF B.S. CHEMISTS  
 WHO PLAN FURTHER STUDIES IN FALL; 1976  
 BY CERTIFICATION STATUS

FIELD OF ADVANCED FURTHER STUDIES	B. S. CHEMISTS			ROW TOTAL
	CERTIFD. <sup>1</sup>	NON- CERTIFD.	COL	
CHEMISTRY	560	243		803
	56.9	20.1		36.6
OTH PHY SCI, MATH	19	20		39
	1.9	1.7		1.8
CHEMICAL ENGRING	35	36		71
	3.6	3.0		3.2
OTHER ENGRING	8	19		27
	0.8	1.6		1.2
BIOCHEMISTRY	82	108		190
	8.3	8.9		8.7
OTH LIFE SCIENCE	38	99		137
	3.9	8.2		6.2
MEDICINE	174	491		665
	17.7	40.5		30.3
DENTISTRY	13	87		100
	1.3	7.2		4.6
PHARMACY	7	15		22
	0.7	1.2		1.0
BUSINESS, MGMT	26	43		69
	2.6	3.6		3.1
LAW	10	13		23
	1.0	1.1		1.0
SOC SCI, HUMNTIES	8	15		23
	0.8	1.2		1.0
OTHER	5	22		27
	0.5	1.8		1.2
COLUMN TOTAL	985	1211		2196
	100.0	100.0		100.0

<sup>1</sup>See note on Table A-9.

TABLE A-14

NUMBER OF FIRM JOB OFFERS TO FULL-TIME EMPLOYED CHEMISTS  
BY HIGHEST DEGREE EARNED AND SEX

18

		BACHELORS		MASTERS		PHD		
NUMBER OF OFFERS		MEN	WOMEN	ROW TOTAL	WOMEN	ROW TOTAL	WOMEN	ROW TOTAL
<b>INEXPERIENCED</b>								
1	%	173	77	250	41	13	69	76
	%	59.0	53.1	57.1	62.1	56.5	52.7	50.7
2		78	38	116	14	4	18	40
		26.6	26.2	26.5	21.2	17.4	20.2	26.7
3		24	16	40	6	5	11	19
		8.2	11.0	9.1	9.1	21.7	12.4	12.7
4		10	7	17	2	1	3	9
		3.4	4.6	3.9	3.0	4.3	3.4	6.0
5		6	7	13	2	0	7	9
		2.0	4.8	3.0	3.0	0.0	2.2	2.0
6 OR 7		2	0	5	1	0	1.1	1.3
		0.7	0.0	0.5	1.5	0.0	1.1	1.3
10 OR MORE		0	0	0	0	0	0	2.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.7
TOTAL		293	145	438	66	23	89	150
MEAN		100.0	100.0	100.0	100.0	100.0	100.0	100.0
		1.7	1.8	1.7	1.7	1.7	1.7	1.9
<b>EXPERIENCED</b>								
1	%	58	11	69	31	9	40	35
	%	55.8	42.3	53.1	60.8	47.4	57.1	50.0
2		24	8	32	7	3	10	15
		23.1	30.8	24.6	13.7	15.8	14.3	21.4
3		12	5	17	10	2	12	12
		11.5	19.2	13.1	19.6	10.5	17.1	17.1
4		5	1	6	2	3	5	4
		4.8	3.8	4.6	3.9	15.8	7.1	5.7
5		3	1	4	0	0	0	2.9
		2.9	3.8	3.1	0.0	0.0	3.1	2.9
6 OR 7		2	0	1.5	0	2	2.9	2.9
		1.9	0.0	1.5	0.0	10.5	1.6	2.9
10 OR MORE		0	0	0	0	0	1.4	0.0
TOTAL		104	26	130	51	15	70	70
MEAN		100.0	100.0	100.0	100.0	100.0	100.0	100.0
		1.8	2.0	1.9	1.9	2.4	2.0	2.3

**TABLE A-15**  
**NUMBER OF FIRM JOB OFFERS TO FULL-TIME EMPLOYED CHEMICAL ENGINEERS**  
**BY HIGHEST DEGREE EARNED AND SEX**

		BACHELORS			MASTERS			PHD		
NUMBER OF OFFERS		MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL
<b>INEXPERIENCED</b>										
1	#	114	10	124	19	0	19	15	1	16
	%	24.9	14.7	23.6	22.1	0.0	21.1	36.6	100.0	38.1
2	#	107	10	117	18	1	19	10	0	10
	%	23.4	14.7	22.2	20.9	25.0	21.1	24.4	0.0	23.8
3	#	83	12	95	15	0	15	7	0	7
	%	18.1	17.6	18.1	17.4	0.0	16.7	17.1	0.0	16.7
4	#	49	6	55	9	0	9	4	0	4
	%	10.7	8.8	10.5	10.5	0.0	10.0	9.8	0.0	9.5
5	#	40	6	46	9	2	11	3	0	3
	%	8.7	8.8	8.7	10.5	50.0	12.2	7.3	0.0	7.1
6 OR 7	#	38	7	45	13	1	14	1	0	1
	%	8.2	10.3	8.6	15.1	25.0	15.6	2.4	0.0	2.4
8 OR 9	#	14	6	20	0	0	0	0	0	0
	%	3.1	8.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0
10 OR MORE	#	13	11	24	3	0	3	1	0	1
	%	2.8	16.2	4.6	3.5	0.0	3.3	2.4	0.0	2.4
TOTAL	#	458	68	526	86	4	90	41	100.0	42
MEAN		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		3.2	5.3	3.6	4.5	3.6	3.6	2.6	2.6	2.6
<b>EXPERIENCED</b>										
1	#	19	1	20	18	3	21	10	1	10
	%	18.6	7.1	17.2	42.9	60.0	44.7	34.5	0.0	32.3
2	#	22	1	23	4	1	5	4	0	4
	%	21.6	7.1	19.8	9.5	20.0	10.6	13.8	0.0	12.9
3	#	12	2	14	4	0	4	7	0	7
	%	11.8	14.3	12.1	9.5	0.0	8.5	24.1	0.0	22.6
4	#	9	2	12	2	0	2	1	0	1
	%	8.8	21.4	10.3	2.4	0.0	2.1	10.3	0.0	9.7
5	#	13	1	14	5	0	5	1	50.0	5
	%	12.7	7.1	12.1	11.9	0.0	10.6	3.4	50.0	6.5
6 OR 7	#	12	3	15	5	0	5	3	50.0	4
	%	11.8	21.4	12.9	11.9	0.0	10.6	10.3	50.0	12.9
8 OR 9	#	7	0	7	2	0	2	3.4	0.0	3.2
	%	6.9	0.0	6.0	4.8	0.0	4.3	3.4	0.0	3.2
10 OR MORE	#	8	3	11	3	1	4	0	0	0
	%	7.8	21.4	9.5	7.1	20.0	8.5	0.0	0.0	0.0
TOTAL	#	102	14	116	42	5	47	29	100.0	31
MEAN		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		4.2	5.7	4.4	3.6	3.6	3.6	2.6	2.6	2.6

TABLE A-16

## AVERAGE NUMBER OF FIRM JOB OFFERS

TO FULL-TIME EMPLOYED MINORITY CHEMISTS AND CHEMICAL ENGINEERS  
BY HIGHEST DEGREE EARNED AND SEX

HIGHEST DEGREE EARNED	CHEMISTS			CHEM. ENGINEERS		
	MEN	WOMEN	RCW TOTAL	MEN	WOMEN	RCW TOTAL
<b>INEXPERIENCED</b>						
BACHELORS	MEAN	2.0	2.7	2.2	3.4	1.3
	COUNT	12	6	18	14	3
	STD DEV	1.0	1.6	1.3	2.7	0.6
MASTERS	MEAN	0.0	1.6	1.6	1.9	0.0
	COUNT	0	8	8	9	0
	STD DEV	0.0	0.9	0.9	0.9	0.0
PHD	MEAN	1.4	1.3	1.4	2.7	0.0
	COUNT	7	3	10	7	0
	STD DEV	0.8	0.6	0.7	1.5	0.0
COLUMN	MEAN	1.8	1.9	1.9	2.8	1.3
	COUNT	15	17	36	30	3
	STD DEV	1.0	1.2	1.1	2.1	0.6
<b>EXPERIENCED</b>						
BACHELORS	MEAN	1.4	1.0	1.4	6.0	7.0
	COUNT	7	1	8	5	1
	STD DEV	1.1	0.0	1.1	4.8	0.0
MASTERS	MEAN	2.0	0.0	2.0	1.0	1.0
	COUNT	5	0	5	1	1
	STD DEV	1.0	0.0	1.0	0.0	0.0
PHD	MEAN	2.4	1.0	2.3	3.0	0.0
	COUNT	9	1	10	4	0
	STD DEV	1.7	0.0	1.7	1.4	0.0
COLUMN	MEAN	2.0	1.0	1.9	4.3	4.0
	COUNT	21	2	23	10	8
	STD DEV	1.4	0.0	1.4	4.2	4.2

TABLE B-1

## STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS AND CHEMICAL ENGINEERS  
BY HIGHEST DEGREE EARNED AND SEX

HIGHEST DEGREE EARNED	MEN	WOMEN	RCW TOTAL
CHEMISTS			
BACHELORS	MEDIAN 10800.	10900.	10800
	MEAN 10828.	10925.	10860.
	COUNT 291	145	436
	STD DEV 2229.	2163.	2205.
MASTERS	12500.	12000.	12400
	12452.	11935.	12320.
	67	23	90
	2607.	2606.	2602.
PHD	18300.	18000.	18300
	17280.	16008.	17119.
	131	19	150
	3131.	3891.	3250.
COLUMN	MEAN 12779.	11565.	12443.
	COUNT 489	187	676
	STD DEV 3769.	2871.	3583.
CHEM. ENGINEERS			
BACHELORS	MEDIAN 15360.	15600.	15420
	MEAN 15180.	15515.	15223.
	COUNT 455	68	523
	STD DEV 1060.	719.	1028.
MASTERS	16620.	16100.	16620
	16425.	16450.	16426.
	86	4	90
	1261.	1139.	1250.
PHD	20700.	20700.	20700
	19912.	20700.	19931.
	41	1	42
	2107.	0.	2084.
COLUMN	MEAN 15697.	15638.	15690.
	COUNT 582	73	655
	STD DEV 1720.	971.	1653.



TABLE B-3

## STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS  
BY EMPLOYER, HIGHEST DEGREE EARNED, AND SEX

		EMPLOYER														
		PRIVATE INDUSTRY		NONMANU-		COLLEGE		HIGH SCH,		STATE GOV		HOSPITAL, IND LAB		NONPROFT RES INST		ROW TOTAL
		MANUFAC-		FACTURING		UNIVERSITY		OTH'R SC		LOC'L GOV		IND LAB		RES INST		
HIGHEST DEGREE EARNED		MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN			
MEN	BACHELORS	11500.	11500.	115424.	11415.	11424.	11415.	10800.	8400.	8800.	9000.	9604.	9500.	9000.	10828.	
MEDIAN	MEAN	11500.	11500.	11424.	11415.	11424.	11415.	8446.	8953.	9918.	9900.	9167.	8867.	8867.	10828.	
COUNT	STD DEV	215	215	215	215	215	215	136	116	115	111	110	121.	121.	229.	
2119.	2119.	2131.	2119.	2092.	2119.	2131.	2119.	1315.	1957.	1336.	1248.	1757.	1757.	1757.	2229.	
MASTERS	FHD	14100.	14220.	14061.	13903.	14061.	13903.	12000.	10600.	9000.	11046.	10922.	9600.	9024.	12452.	
MEDIAN	MEAN	13737.	13737.	13737.	13737.	13737.	13737.	12595.	11127.	9025.	11699.	11241.	9833.	9024.	12452.	
COUNT	STD DEV	2076.	2076.	2076.	2076.	2076.	2076.	1124.	2397.	858.	2369.	1427.	1044.	0.	67.	
1637.	1637.	1637.	1637.	1637.	1637.	1637.	1637.	2719.	2075.	0.	2083.	0.	0.	0.	2607.	
COLUMN	MEAN	13619.	13714.	13714.	13619.	13714.	13619.	13125.	11053.	8968.	12949.	10209.	9315.	11265.	12764.	
MEDIAN	MEAN	3343.	3288.	3288.	3343.	3288.	3343.	355.	54.	19.	27.	13.	27.	27.	488.	
COUNT	STD DEV	3733.	3776.	3776.	3733.	3776.	3733.	3488.	2604.	1761.	3899.	1362.	1632.	1632.	3759.	
WOMEN	BACHELORS	12100.	12100.	11948.	11797.	11948.	11797.	10600.	8200.	8700.	9000.	10524.	9600.	8400.	10925.	
MEDIAN	MEAN	11797.	11797.	11948.	11797.	11948.	11797.	11075.	8154.	8992.	10193.	10291.	9364.	8400.	1145.	
COUNT	STD DEV	1898.	1898.	1881.	1898.	1881.	1898.	1866.	117.	113.	9.	1485.	1485.	1485.	2163.	
1839.	1839.	1866.	1839.	1866.	1839.	1866.	1839.	1555.	1346.	1684.	1454.	1486.	1486.	0.		
MASTERS	FHD	14100.	14100.	14100.	12951.	14100.	12951.	10000.	8400.	8200.	13482.	0.	9713.	9000.	11935.	
MEDIAN	MEAN	13269.	13269.	13269.	13269.	13269.	13269.	12075.	8950.	8200.	13482.	0.	11227.	9100.	11935.	
COUNT	STD DEV	2352.	2352.	2352.	2352.	2352.	2352.	2131.	3048.	778.	0.	0.	0.	142.	23.	
2111.	2111.	2111.	2111.	2111.	2111.	2111.	2111.	778.	0.	0.	0.	0.	0.	0.	2606.	
18760.	18760.	18760.	18915.	18760.	18915.	18760.	18915.	18200.	11500.	0.	0.	0.	0.	0.	16008.	
MEDIAN	MEAN	18873.	18873.	18873.	18873.	18873.	18873.	18650.	11271.	0.	0.	0.	0.	0.	16008.	
COUNT	STD DEV	848.	848.	848.	848.	848.	848.	909.	636.	1524.	0.	0.	0.	0.	3891.	
909.	909.	909.	909.	909.	909.	909.	909.	636.	1524.	0.	0.	0.	0.	0.	3891.	
12718.	12718.	12718.	12568.	12718.	12568.	12718.	12568.	11908.	9219.	8913.	10851.	10291.	9583.	10950.	11565.	
MEDIAN	MEAN	101.	101.	101.	101.	101.	101.	23.	22.	10.	195.	1607.	1617.	4.	187.	
COUNT	STD DEV	2729.	2729.	2729.	2729.	2729.	2729.	2709.	2778.	1960.	1936.	1486.	1618.	4181.	2871.	

## STARTING SALARIES

OF INEXPERIENCED FULL-TIME CHEMICAL ENGINEERS  
BY EMPLOYER, HIGHEST DEGREE EARNED, AND SEX

HIGHEST DEGREE EARNED	EMPLOYER	PRIVATE INDUSTRY			MANUFACTURING			NONMANUFACTURING			COLLEGE UNIVERSITY			FEDERAL GOVERNMENT			NONPROFIT RES INST			ROW TOTAL		
		TOTAL	MEN	WOMEN	BACHL CRS	MEDIAN	MEAN	COUNT	STD DEV	MEN	MEAN	COUNT	STD DEV	MEN	MEAN	COUNT	STD DEV	MEN	MEAN	COUNT	STD DEV	
MEN	BACHL CRS	15360.	15400.	15200.	MASTER	15207.	15237.	15394.	1024.	14990.	14954.	1189.	1154.	16800.	16320.	16273.	1623.	17259.	16500.	16000.	14700.	15183.
	MEAN	15207.	15237.	15200.						1154.		1189.		16800.	16320.	16273.	1623.	17259.	16500.	16000.	14700.	14700.
	COUNT	1448	15394.	14990.										16800.	16320.	16273.	1623.	17259.	16500.	16000.	14700.	14700.
	STD DEV	1024.												16800.	16320.	16273.	1623.	17259.	16500.	16000.	14700.	14700.
MASTERS	BACHL CRS	16410.	16465.	16465.	MASTER	16410.	16465.	1660.	1271.	16273.	16273.	1933.	182.	21000.	20700.	20622.	20834.	16373.	16600.	20200.	16800.	16425.
	MEAN	16410.	16465.	16465.						16273.		1933.		21000.	20700.	20622.	20834.	16373.	16600.	20200.	16800.	16425.
	COUNT	82								16273.		1933.		21000.	20700.	20622.	20834.	16373.	16600.	20200.	16800.	16425.
	STD DEV	1271.								1933.		1061.		20774.	20090.	20622.	20834.	16373.	16600.	20200.	16800.	16425.
PHD	BACHL CRS	21000.	21000.	21000.	MASTER	21000.	21000.	20622.	906.	20700.	20700.	992.	82.	20774.	20090.	20622.	20834.	16373.	16600.	20200.	16800.	19912.
	MEAN	21000.	21000.	21000.						20700.		992.		20774.	20090.	20622.	20834.	16373.	16600.	20200.	16800.	19912.
	COUNT	32								20622.		992.		20774.	20090.	20622.	20834.	16373.	16600.	20200.	16800.	19912.
	STD DEV	906.								992.		661.		20774.	20090.	20622.	20834.	16373.	16600.	20200.	16800.	19912.
COLUMN	BACHL CRS	15701.	15661.	15923.	MASTER	15701.	15661.	15923.	1621.	15668.	15668.	1621.	2018.	2037.	2037.	2018.	15668.	14264.	15833.	15700.	15700.	
	MEAN	15661.	15661.	15923.						15668.		1621.		2037.	2037.	2037.	2018.	15668.	14264.	15833.	15700.	15700.
	COUNT	563								15923.		1621.		2037.	2037.	2037.	2018.	15668.	14264.	15833.	15700.	15700.
	STD DEV	16888.								1621.		2018.		2037.	2037.	2037.	2018.	15668.	14264.	15833.	15700.	15700.
WOMEN	BACHL CRS	15600.	15600.	15300.	MASTER	15600.	15600.	15450.	723.	15300.	15300.	723.	66.	17200.	17200.	16932.	737.	15300.	14700.	15600.	15600.	15515.
	MEAN	15527.	15527.	15450.						15450.		723.		17200.	17200.	16932.	737.	15300.	14700.	15600.	15600.	15515.
	COUNT	66								15450.		723.		17200.	17200.	16932.	737.	15300.	14700.	15600.	15600.	15515.
	STD DEV	723.								16932.		737.		17200.	17200.	16932.	737.	15300.	14700.	15600.	15600.	15515.
MASTERS	BACHL CRS	16932.	16932.	1737.	MASTER	16932.	16932.	1737.	737.	1737.	1737.	737.	737.	17200.	17200.	16932.	737.	1737.	15000.	15000.	15000.	16450.
	MEAN	16932.	16932.	1737.						1737.		737.		17200.	17200.	16932.	737.	1737.	15000.	15000.	15000.	16450.
	COUNT	3								1737.		737.		17200.	17200.	16932.	737.	1737.	15000.	15000.	15000.	16450.
	STD DEV	737.								737.		737.		17200.	17200.	16932.	737.	1737.	15000.	15000.	15000.	16450.
PHD	BACHL CRS	20700.	20700.	20700.	MASTER	20700.	20700.	20700.	1.	20700.	20700.	1.	0.	20700.	20700.	20700.	1.	20700.	20700.	20700.	20700.	
	MEAN	20700.	20700.	20700.						20700.		1.		20700.	20700.	20700.	1.	20700.	20700.	20700.	20700.	
	COUNT	1								20700.		1.		20700.	20700.	20700.	1.	20700.	20700.	20700.	20700.	
	STD DEV	0.								20700.		0.		20700.	20700.	20700.	1.	20700.	20700.	20700.	20700.	
COLUMN	BACHL CRS	15661.	15688.	15450.	MASTER	15661.	15688.	15450.	982.	15688.	15688.	982.	1029.	20700.	20700.	20700.	1029.	20700.	20700.	20700.	20700.	
	MEAN	15661.	15688.	15450.						15688.		982.		20700.	20700.	20700.	1029.	20700.	20700.	20700.	20700.	
	COUNT	70								15688.		982.		20700.	20700.	20700.	1029.	20700.	20700.	20700.	20700.	
	STD DEV	982.								982.		1029.		20700.	20700.	20700.	1029.	20700.	20700.	20700.	20700.	

TABLE B-5

## STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME CHEMISTS AND CHEMICAL ENGINEERS  
BY GEOGRAPHIC REGION AND HIGHEST DEGREE EARNED

GEOGRAPHIC REGION							ROW TOTAL
HIGHEST DEGREE EARNED	PACIFIC	MOUNTAIN	WEST NO. CENTRAL	EAST SD. CENTRAL	MIDDLE ATLANTIC	NEW ENGLAND	
CHEMISTS	11000.	11700.	9700.	11000.	9528.	9800.	10400.
MEDIAN	11288.	10988.	10418.	11077.	9508.	10672.	10940.
BACHL CRS	1129.	113.	1126.	1137.	1118.	1114.	1094.
MEAN	1129.	113.	1126.	1137.	1118.	1114.	1094.
COUNT	3131.	2564.	2417.	2325.	2003.	2502.	2436.
STD DEV	3131.	2564.	2417.	2325.	2003.	2502.	2205.
MASTERS	10500.	11200.	12600.	13478.	13500.	12000.	11500.
MEDIAN	11009.	12082.	12507.	13407.	13164.	12321.	12059.
BACHL CRS	1105.	1123.	11063.	1116.	1112.	1104.	10850.
MEAN	1105.	1123.	11063.	1116.	1112.	1104.	112320.
COUNT	2730.	1663.	1063.	2590.	3014.	2020.	2602.
STD DEV	2730.	1663.	1063.	2590.	3014.	2020.	2602.
PHD	14500.	16667.	19200.	18300.	15600.	18200.	18000.
MEDIAN	15478.	15787.	17977.	18496.	16950.	17761.	15838.
BACHL CRS	1513.	4244.	2906.	3282.	3422.	3472.	321.
MEAN	12417.	12591.	11704.	12847.	12442.	10829.	12277.
COUNT	47.	23.	46.	63.	155.	12763.	12343.
STD DEV	3890.	3682.	3633.	36664.	3110.	3535.	3389.
CHEM. ENGINEERS	15300.	15600.	15900.	15800.	15300.	15300.	15400.
MEDIAN	15164.	15374.	14734.	15734.	15195.	1524.	1530.
BACHL CRS	41.	18.	30.	100.	102.	81.	106.
MEAN	15164.	15374.	14734.	15734.	15195.	1524.	1530.
COUNT	847.	668.	1233.	875.	829.	817.	854.
STD DEV	847.	668.	1233.	875.	829.	817.	854.
MASTERS	16000.	15000.	15700.	16800.	16500.	16800.	16620.
MEDIAN	16625.	15000.	14933.	17060.	16339.	16500.	16473.
BACHL CRS	1372.	0.	1686.	560.	1488.	2121.	16473.
MEAN	1372.	0.	1686.	560.	1488.	2121.	16473.
COUNT	20200.	21220.	0.	21000.	20163.	0.	20700.
STD DEV	19914.	21220.	0.	21089.	18986.	0.	20226.
PHD	1561.	1.	0.	0.	10.	0.	20183.
MEDIAN	1561.	1.	0.	0.	10.	0.	20183.
BACHL CRS	1561.	1.	0.	0.	523.	2126.	1270.
MEAN	1561.	1.	0.	0.	523.	2126.	1270.
COUNT	15966.	15648.	14753.	16257.	15670.	15335.	15747.
STD DEV	56.	20.	33.	120.	135.	139.	14712.
PHD	1885.	1458.	1248.	1654.	1502.	973.	1024.
MEDIAN	1885.	1458.	1248.	1654.	1502.	973.	1024.
BACHL CRS	1885.	1458.	1248.	1654.	1502.	973.	1024.
MEAN	1885.	1458.	1248.	1654.	1502.	973.	1024.
COUNT	1885.	1458.	1248.	1654.	1502.	973.	1024.
STD DEV	1885.	1458.	1248.	1654.	1502.	973.	1024.

Note: See page 39 for list of states by geographic regions.

TABLE B-6  
 STARTING YEARLY SALARIES  
 OF INEXPERIENCED FULL-TIME B.S. CHEMISTS  
 BY EMPLOYER AND CERTIFICATION STATUS

EMPLOYER	B. S. CHEMISTS		ROW TOTAL
	CERTIFC. <sup>1</sup>	NON-CERTIFC.	
MANUFAC - TURING	MEDIAN	12000.	11000.
	MEAN	11866.	11219.
	COUNT	148	112
	STD DEV	1986.	2113.
NONMANUFACTURING	MEDIAN	12000.	10500.
	MEAN	11400.	11146.
	COUNT	27	26
	STD DEV	1690.	2170.
COLLEGE, UNIVRSTY	MEDIAN	8200.	8400.
	MEAN	8145.	8419.
	COUNT	11	18
	STD DEV	1441.	1260.
HIGH SCH, OTHR SC	MEDIAN	8350.	8700.
	MEAN	8190.	9172.
	COUNT	5	19
	STD DEV	906.	1961.
FEDERAL GOVERNMT	MEDIAN	9000.	9700.
	MEAN	9695.	10188.
	COUNT	6	9
	STD DEV	1329.	1356.
STATE, LOCL GOV	MEDIAN	9800.	9756.
	MEAN	9961.	10076.
	COUNT	6	9
	STD DEV	1411.	1293.
HOSPITAL, IND LAB	MEDIAN	9500.	9500.
	MEAN	9473.	9150.
	COUNT	11	25
	STD DEV	1112.	1827.
NONPRFT RES INST	MEDIAN	9000.	8000.
	MEAN	9000.	8000.
	COUNT	3	1
	STD DEV	600.	0.
ALL EMPLOYERS	MEDIAN	11500.	10200.
	MEAN	11261.	10462.
	COUNT	217	219
	STD DEV	2145.	2196.

<sup>1</sup>See note on Table A-9.

TABLE B-7

## STARTING YEARLY SALARIES

OF INEXPERIENCED FULL-TIME M.S. AND PH.D. CHEMISTS  
BY FIELD OF HIGHEST DEGREE

FIELD OF HIGHEST DEGREE	MASTERS	PHD	ROW TOTAL
CHEMISTRY, GENERAL	MEDIAN 10500. MEAN 11990. COUNT 12 STD DEV 2799.	20700. 21180. 3 1101.	13828. 15 4561.
BIOCHEMISTRY	9500. 10640. 6 2680.	12000. 12700. 5 3633.	11576. 11 3167.
ANALYTICAL	14300. 14285. 19 2598.	18000. 17396. 20 2701.	15880. 39 3054.
INORGANIC	12000. 11532. 9 2189.	16500. 15915. 30 3789.	14904. 39 3933.
ORGANIC	12000. 12225. 29 2168.	18500. 17790. 46 2545.	15638. 75 3628.
PHARMA, MED, CLN	9713. 11357. 2 2324.	0. 0. 0. 0.	11357. 2 2324.
PHYSICAL, THEORET	12800. 12333. 6 2544.	18500. 17314. 35 3382.	16585. 41 3703.
POLYMER, MACROMOL	0. 0. 0. 0.	18000. 18550. 5 971.	18550. 5 971.
CHEMISTRY, OTHER	10922. 10658. 7 2334.	16500. 16393. 6 3215.	13305. 13 3986.
ALL FIELDS	12400. 12320. 90 2602.	18300. 17119. 150 3250.	15319. 240 3811.

TABLE B-8  
STARTING YEARLY SALARIES  
OF INEXPERIENCED FULL-TIME MINORITY CHEMISTS AND CHEMICAL ENGINEERS  
BY HIGHEST DEGREE EARNED

HIGHEST DEGREE EARNED	CHEMISTS	CHEM EN- GINEERS	RCW TOTAL
BACHLORS	MEDIAN 9648.	15300.	
	MEAN 10589.	15061.	12761.
	COUNT 18	17	35
	STD DEV 2026.	1439.	2858.
MASTERS	9500.	16380.	
	10419.	16021.	13385.
	8	9	17
	2268.	1450.	3407.
PHD	16000.	20400.	
	15220.	19760.	17089.
	10	7	17
	3524.	2314.	3781.
COLUMN	MEAN 11838.	16320.	13981.
	COUNT 36	33	69
	STD DEV 3278.	2454.	3667.

TABLE B-9  
YEARLY SALARIES  
OF POSTDOCTORAL CHEMISTS AND CHEMICAL ENGINEERS  
BY EMPLOYER

EMPLOYER	CHEMISTS	CHEM EN- GINEERS
MANUFAC- TURING	MEDIAN 11000.	0.
	MEAN 12767.	0.
	COUNT 3	0
	STD DEV 5853.	0.
NONMANUFACTURING	12000.	0.
	15500.	0.
	2	0
	4950.	0.
COLLEGE,UNIVRSTY	10000.	10800.
	9740.	10532.
	196	10
	1388.	1411.
HIGH SCH,OTHR SC	7500.	0.
	7750.	0.
	2	0
	354.	0.
FEDERAL GOVERNMT	12000.	15000.
	12741.	15000.
	28	1
	2409.	0.
HOSPITAL,IND LAB	10000.	0.
	11413.	0.
	8	0
	1713.	0.
NONPRFT RES INST	10000.	0.
	11525.	0.
	4	0
	3241.	0.
ALL EMPLOYERS	10000.	10920.
	10239.	10938.
	243	11
	2039.	1899.

TABLE C-1

## AGE DISTRIBUTION

OF B.S. CHEMISTS AND CHEMICAL ENGINEERS  
BY SEX

AGE CATEGORY	#	CHEMISTS			CHEM. ENGINEERS		
		IMEN	WCWEN	ROW TOTAL	IMEN	WOMEN	ROW TOTAL
19 OR LESS	%	0.0	0.0	0.0	0.0	0.0	0.0
20		25	7	32	4	0	4
		1.1	1.0	1.1	0.5	0.0	0.4
21		165	81	246	35	3	38
		7.3	11.5	8.3	4.3	3.2	4.2
22		1372	456	1828	404	61	465
		60.7	64.6	61.7	49.7	65.6	51.3
23		395	85	480	231	20	251
		17.5	12.0	16.2	28.4	21.5	27.7
24		99	20	119	54	5	59
		4.4	2.8	4.0	6.6	5.4	6.5
25		43	7	50	23	1	24
		1.9	1.0	1.7	2.8	1.1	2.6
26		36	8	44	13	2	15
		1.6	1.1	1.5	1.6	2.2	1.7
27		37	10	47	12	0	12
		1.6	1.4	1.6	1.5	0.0	1.3
28		23	4	27	13	1	14
		1.0	0.6	0.9	1.6	1.1	1.5
29		18	6	24	7	0	7
		0.8	0.8	0.8	0.9	0.0	0.8
30-34		31	8	39	13	0	13
		1.4	1.1	1.3	1.6	0.0	1.4
35-39		7	6	13	4	0	4
		0.3	0.8	0.4	0.5	0.0	0.4
40-49		7	4	11	0	0	0
		0.3	0.6	0.4	0.0	0.0	0.0
50-64		0	4	4	0	0	0
		0.0	0.6	0.1	0.0	0.0	0.0
COLUMN TOTAL		2259	706	2965	813	93	906
		100.0	100.0	100.0	100.0	100.0	100.0

TABLE C-2

 AGE DISTRIBUTION  
 OF M.S. CHEMISTS AND CHEMICAL ENGINEERS  
 BY SEX

AGE CATEGORY	CHEMISTS			CHEM. ENGINEERS		
	MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL
20	# 0.3	0.0	0.3	0.1	0.0	0.1
21	2.2	0.0	0.5	1.1	0.0	0.5
22	0.7	0.0	0.5	0.5	0.0	0.5
23	9.3	4.7	13.0	9.0	0.0	9.0
24	3.0	4.7	3.4	4.4	0.0	4.1
25	10.0	6.0	16.0	20.0	2.0	22.0
26	3.4	7.0	4.2	9.7	15.4	10.0
27	51.1	20.0	71.1	52.0	4.0	56.0
28	17.2	23.3	18.5	25.2	30.8	25.6
29	61.1	13.0	74.0	38.0	3.0	41.0
30	20.5	15.1	19.3	18.4	23.1	18.7
31	37.0	10.0	47.0	32.0	3.0	35.0
32	12.5	11.6	12.3	15.5	23.1	16.0
33	36.0	11.0	47.0	17.0	0.0	17.0
34	12.1	12.8	12.3	8.3	0.0	7.8
35	19.0	7.0	26.0	3.0	0.0	3.0
36	6.4	8.1	6.8	1.5	0.0	1.4
37	26.0	2.0	28.0	12.0	0.0	12.0
38	8.8	2.3	7.3	5.8	0.0	5.5
39	40.0	7.0	47.0	13.0	1.0	14.0
40	13.5	8.1	12.3	6.3	7.7	6.4
41	3.0	1.0	4.0	2.5	0.0	2.5
42	1.0	1.2	1.0	2.4	0.0	2.3
43	2.0	4.0	6.0	3.0	0.0	3.0
44	0.7	4.7	1.6	1.5	0.0	1.4
45	0.0	1.2	0.3	0.0	0.0	0.0
COLUMN TOTAL	297	86	383	206	13	219
	100.0	100.0	100.0	100.0	100.0	100.0

TABLE C-3

AGE DISTRIBUTION  
OF PH.D. CHEMISTS AND CHEMICAL ENGINEERS  
BY SEX

AGE CATEGORY	CHEMISTS			CHEM. ENGINEERS		
	MEN	WOMEN	ROW TOTAL	MEN	WOMEN	ROW TOTAL
23	# 0	1	1	0.0	0.0	0.0
	% 0.0	1.7	0.2	0.0	0.0	0.0
24	3	0	3	0.0	0.0	0.0
	0.7	0.0	0.6	0.0	0.0	0.0
25	6	0	6	3	0	3
	1.4	0.0	1.2	3.7	0.0	3.5
26	22	7	29	4	1	5
	5.0	12.1	5.8	4.9	33.3	5.9
27	77	19	96	11	0	11
	17.3	32.8	19.1	13.4	0.0	12.9
28	98	18	116	19	0	19
	22.1	31.0	23.1	23.2	0.0	22.4
29	59	5	64	12	2	14
	13.3	8.6	12.7	14.6	66.7	16.5
30-34	154	5	159	25	0	25
	34.7	8.6	31.7	30.5	0.0	29.4
35-39	21	1	22	6	0	6
	4.7	1.7	4.4	7.3	0.0	7.1
40-49	3	1	4	1	0	1
	0.7	1.7	0.8	1.2	0.0	1.2
50-64	1	1	2	1	0	1
	0.2	1.7	0.4	1.2	0.0	1.2
COLUMN TOTAL	444	58	502	82	3	85
	100.0	100.0	100.0	100.0	100.0	100.0

TABLE C-4

## AGE DISTRIBUTION

OF POSTDOCTORAL CHEMISTS AND CHEMICAL ENGINEERS  
BY SEX

AGE CATEGORY	CHEMISTS			CHEM. ENGINEERS	
	MEN	WOMEN	ROW TOTAL	MEN	ROW TOTAL
23	# 0	3.4	0.4	0.0	0.0
25	1 0.5	0.0	0.4	0.0	0.0
26	12 5.6	10.3	15.1	0.0	0.0
27	41 19.1	37.9	52.0	4 36.4	36.4
28	57 26.5	31.0	66.0	1 9.1	9.1
29	25 11.6	3.4	10.7	2 18.2	18.2
30-34	70 32.6	10.3	73.9	4 36.4	36.4
35-39	8 3.7	0.0	8.3	0.0	0.0
40-49	1 0.5	0.0	0.4	0.0	0.0
50-64	0 0.0	3.4	0.4	0.0	0.0
COLUMN TOTAL	215 100.0	29 100.0	244 100.0	11 100.0	11 100.0

## MINORITY CLASSIFICATION OF CHEMISTS AND CHEMICAL ENGINEERS

BY HIGHEST DEGREE EARNED AND SEX

MINORITY CLASSIFICATION	BACHELORS		MASTERS		PHD	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
CHEMISTS						
BLACK- NEGRO	# %	33 1.5	23 3.2	56 1.9	8 2.7	2 3.6
AMERICAN INDIAN		4 0.2	1 0.1	5 0.2	0 0	0 0
CRIENTAL		39 1.8	11 1.6	50 1.7	17 5.8	7 8.3
SPANISH-SURNAMED		25 1.1	12 1.7	37 1.3	3 1.0	2 2.4
NCN- MINORITY		2100 95.4	651 93.3	2751 94.9	72 90.4	72 85.7
COLUMN TOTAL		2201 100.0	698 100.0	2899 100.0	292 100.0	84 100.0
					100.0	100.0
						100.0

CHEM. ENGINEERS	BACHELORS		MASTERS		PHD	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
BLACK- NEGRO	# %	1.9 1.1	0 0.0	1.0 0.5	0 0	0 0.5
AMERICAN INDIAN		0 0.0	0 0.0	0 0.0	0 0	1 0.1
CRIENTAL		20 2.5	4 4.3	24 2.7	16 7.9	1 7.7
SPANISH-SURNAMED		7 0.9	0 0.0	7 0.8	3 1.5	0 0.0
NCN- MINORITY		765 95.5	89 95.7	854 95.5	182 90.1	12 92.3
COLUMN TOTAL		801 100.0	93 100.0	894 100.0	202 100.0	13 100.0
					100.0	100.0
						100.0

TABLE C-6 CITIZENSHIP CLASSIFICATION OF CHEMISTS AND CHEMICAL ENGINEERS  
BY HIGHEST DEGREE EARNED AND SEX

TABLE C-7  
MINORITY AND CITIZENSHIP CLASSIFICATION OF CHEMISTS  
BY HIGHEST DEGREE EARNED

		MINORITY CLASSIFICATION					ROW TOTAL
CITIZENSHIP		BLACK- INNEGRO	AMERICAN INDIAN	ORIENTAL	SPANISH- SURNAMED	NON- MINORITY	
BACHELORS							
U. S. CITIZEN	%	51	5	42	34	2722	2854
		92.7	100.0	84.0	94.4	99.2	98.8
RESIDENT VISA		1	0.0	3	2	15	21
		1.8	0.0	6.0	5.6	0.5	0.7
OTHER VISA		3	0.0	5	0	6	14
		5.5	0.0	10.0	0.0	0.2	0.5
COLUMN TOTAL		55	5	50	36	2743	2889
		100.0	100.0	100.0	100.0	100.0	100.0
MASTERS							
U. S. CITIZEN	%	10	0	8	4	315	337
		100.0	0.0	33.3	80.0	94.0	90.1
RESIDENT VISA		0	0	2	0	5	7
		0.0	0.0	8.3	0.0	1.5	1.9
OTHER VISA		0	0	14	1	15	30
		0.0	0.0	58.3	20.0	4.5	8.0
COLUMN TOTAL		10	0	24	5	335	374
		100.0	0.0	100.0	100.0	100.0	100.0
PHD							
U. S. CITIZEN	%	3	0	14	4	410	431
		100.0	0.0	34.1	66.7	92.8	87.6
RESIDENT VISA		0	0	19	1	17	37
		0.0	0.0	46.3	16.7	3.8	7.5
OTHER VISA		0	0	8	1	15	24
		0.0	0.0	19.5	16.7	3.4	4.9
COLUMN TOTAL		3	0	41	6	442	492
		100.0	0.0	100.0	100.0	100.0	100.0

TABLE C-8

 MINORITY AND CITIZENSHIP CLASSIFICATION OF CHEMICAL ENGINEERS  
 BY HIGHEST DEGREE EARNED

		MINORITY CLASSIFICATION					
CITIZENSHIP		BLACK- INEGRO	AMERICAN INDIAN	ORIENTAL	SPANISH-	NON- SURNAMED MINORITY	ROW TOTAL
BACHELORS -----							
U. S. CITIZEN #	%	8	0.0	15	5	840	868
		88.9	0.0	62.5	71.4	98.6	97.3
RESIDENT VISA		1	0.0	4	2	5	12
		11.1	0.0	16.7	28.6	0.6	1.3
OTHER VISA		0	0	5	0	7	12
		0.0	0.0	20.8	0.0	0.8	1.3
COLUMN TOTAL		9	0	24	7	852	892
		100.0	0.0	100.0	100.0	100.0	100.0
MASTERS -----							
U. S. CITIZEN #	%	0	0	6	3	161	170
		0.0	0.0	37.5	100.0	83.4	79.8
RESIDENT VISA		1	0	4	0	4	9
		100.0	0.0	25.0	0.0	2.1	4.2
OTHER VISA		0	0	6	0	28	34
		0.0	0.0	37.5	0.0	14.5	16.0
COLUMN TOTAL		1	0	16	3	193	213
		100.0	0.0	100.0	100.0	100.0	100.0
PHD -----							
U. S. CITIZEN #	%	1	1	1	1	45	49
		100.0	100.0	9.1	50.0	66.2	59.0
RESIDENT VISA		0	0	8	1	9	18
		0.0	0.0	72.7	50.0	13.2	21.7
OTHER VISA		0	0	2	0	14	16
		0.0	0.0	18.2	0.0	20.6	19.3
COLUMN TOTAL		1	1	11	2	68	83
		100.0	100.0	100.0	100.0	100.0	100.0

## APPENDIX

### SCOPE AND METHOD OF SURVEY

#### OBJECTIVES OF SURVEY

The 1976 survey is the twenty-fifth in the series of starting salary surveys conducted by the American Chemical Society. A summary of the results was published in the October 5, 1976 issue of Chemical and Engineering News.

The primary objective of the survey is to determine the salaries and occupational status of the students who majored in chemistry and chemical engineering and who graduated during the 1975-76 academic year. The survey covers the three degree levels: bachelor's, master's, and Ph.D. In addition, the survey provides information on major employer categories, on graduate study plans, on women and minority participation, and citizenship status.

#### METHOD OF COLLECTION AND TIMING OF SURVEY

Chemistry and chemical engineering departments provided lists of names and addresses of graduates. The cooperating departments were the chemistry departments approved by the ACS, and the chemical engineering departments accredited by the American Institute of Chemical Engineers and the Engineer's Council for Professional Development.

During the summer of 1976, the Office of Manpower Studies sent questionnaires to graduates who had U.S. addresses and graduation dates between September 1975 and June 1976. Summer graduates were excluded because most of them had twelve months experience by the time the survey was conducted.

#### EXTENT OF COVERAGE

Approximately 11,800 questionnaires were mailed to graduates of 531 chemistry and 123 chemical engineering departments. Most of the questionnaires were sent by bulk mail, but several hundred were sent first class. Since about 10% of those sent first class mail were returned, we infer that about 90% of the 11,800 questionnaires reached the graduates. By the mid-September cutoff date, the Office of Manpower Studies had received 5,142 responses, 5,084 of them usable.

The Office of Manpower Studies estimates that U.S. colleges and universities granted about 18,500 chemistry and chemical engineering degrees during the year ending June 1976. No effort was made to examine the characteristics of the graduates from departments that did not participate in the survey or of those graduates who did not mail back completed questionnaires.

#### DEFINITIONS

The questionnaire appears in the appendix. Question H on post-graduation status was edited in order to eliminate multiple check marks and to reflect as accurately as possible the employment status of the respondent.

The term "inexperienced" as used in the tables refers to those who have 12 months or less of prior professional work experience. Only the salaries of those who found full-time employment in chemistry or chemical engineering were analyzed. Postdoctoral salaries were analyzed separately. The discrepancies in the number of respondents in various tables reflect the use of incomplete questionnaires.

## GEOGRAPHIC REGIONS

## PACIFIC

WASHINGTON  
OREGON  
CALIFORNIA  
ALASKA  
HAWAII

## EAST SOUTH CENTRAL

KENTUCKY  
TENNESSEE  
MISSISSIPPI  
ALABAMA

## MOUNTAIN

MONTANA  
IDAHO  
WYOMING  
NEVADA  
UTAH  
COLORADO  
ARIZONA  
NEW MEXICO

## MIDDLE ATLANTIC

NEW YORK  
PENNSYLVANIA  
NEW JERSEY

## WEST NORTH CENTRAL

NORTH DAKOTA  
MINNESOTA  
SOUTH DAKOTA  
IOWA  
NEBRASKA  
KANSAS  
MISSOURI

## SOUTH ATLANTIC

DELAWARE  
MARYLAND  
WEST VIRGINIA  
DISTRICT OF COLUMBIA  
VIRGINIA  
NORTH CAROLINA  
SOUTH CAROLINA  
GEORGIA  
FLORIDA

## NEW ENGLAND

MAINE  
NEW HAMPSHIRE  
VERMONT  
MASSACHUSETTS  
CONNECTICUT  
RHODE ISLAND

## WEST SOUTH CENTRAL

OKLAHOMA  
ARKANSAS  
TEXAS  
LOUISIANA

## EAST NORTH CENTRAL

WISCONSIN  
MICHIGAN  
ILLINOIS  
INDIANA  
OHIO

## AMERICAN CHEMICAL SOCIETY

Starting Salary and Employment Status of 1976 Chemistry and Chemical Engineering Graduates

A. Sex: (1) Male (2) Female

B. Year of birth \_\_\_\_\_

C. Highest degree received in 1975-76 academic year: (1) Bachelors (2) Masters (3) Ph.D.

D. Field of highest degree:

- |   |   |
|---|---|
| (01) <u>Chemical engineering</u>        | (07) <u>Organic chemistry</u>                           |
| (02) <u>Chemistry, general</u>          | (08) <u>Pharmaceutical/medicinal/clinical chemistry</u> |
| (03) <u>Biochemistry</u>                | (09) <u>Physical/theoretical chemistry</u>              |
| (04) <u>Agricultural/food chemistry</u> | (10) <u>Polymer/macromolecular chemistry</u>            |
| (05) <u>Analytical chemistry</u>        | (14) <u>Chemistry, other (specify) _____</u>            |
| (06) <u>Inorganic chemistry</u>         | (15) <u>Non-chemical (specify) _____</u>                |

E. Citizenship: (1) U.S. citizen (2) U.S. permanent resident visa (3) Other visa: (specify) \_\_\_\_\_F. Are you a member of any of the minority groups recognized by the Equal Employment Opportunity Commission listed below? Yes (5) No

If "Yes," please check those which apply to you:

- |  |  |
|--|--|
| (1) <u>Black/Negro</u>   | (2) <u>American Indian</u>   |
| (3) <u>Oriental (those of Chinese, Japanese, Korean, or Filipino ancestry)</u> | (4) <u>Spanish-Surnamed (those of Mexican, Puerto Rican, Cuban, or Spanish ancestry)</u> |

G. Post-graduation employment status:

- (1) Accepted (or continued) full-time employment in a field of chemistry or chemical engineering.
- (2) Accepted (or continued) full-time employment in a field other than chemistry or chemical engineering.
- (3) Accepted graduate assistantship or postdoctoral or other fellowship.
- (4) Entered military service, Peace Corps, VISTA, PHS, or other similar service.
- (5) Was unable to obtain full-time employment.
- (6) Was not seeking full-time employment.

H. Do you plan further advanced studies in fall 1976? Yes (14) No

If "Yes," please specify field:

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| (01) <u>Chemistry</u>              | (07) <u>Medicine</u>                |
| (02) <u>Other physical science</u> | (08) <u>Dentistry</u>               |
| (03) <u>Chemical engineering</u>   | (09) <u>Pharmacy</u>                |
| (04) <u>Other engineering</u>      | (10) <u>Business administration</u> |
| (05) <u>Biochemistry</u>           | (11) <u>Law</u>                     |
| (06) <u>Other life science</u>     | (12) <u>Social science</u>          |
|                                    | (13) <u>Other (specify) _____</u>   |

IF YOU HAVE FULL-TIME EMPLOYMENT OR A POSTDOCTORAL POSITION, PLEASE ANSWER THE REMAINING QUESTIONS:

I. Annual starting salary: \$ \_\_\_\_\_

J. Technical work experience prior to graduation: (1) less than 12 months (2) 12 months (or none) (3) or more

K. Employer classification (check the one category which best describes your employer):

Private industry or business:

- |   |  |
|---|--|
| (01) <u>manufacturing</u>               | (05) <u>Federal government</u>                 |
| (02) <u>non-manufacturing</u>           | (06) <u>State or local government</u>          |
| (03) <u>College or university</u>       | (08) <u>Hospital or independent laboratory</u> |
| (04) <u>High school or other school</u> | (09) <u>Other non-profit organization</u>      |
|   | (10) <u>Other (specify) _____</u>              |

L. Geographic location of employment: State \_\_\_\_\_

M. How many firm offers of employment did you receive in a field of chemistry or chemical engineering? Specify number \_\_\_\_\_

PLEASE DO NOT WRITE IN THIS SPACE

A. 1B. 2 3C. 4D. 5 6E. 7F. 8G. 9H. 10 11I. 12 13 14 15 16J. 17K. 18 19L. 20 21M. 22 23Certification 24Please return within 10 days to the American Chemical Society  
1155 Sixteenth St. N.W., Washington, D.C. 20036  
Thank You







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