

# Chemical Technicians

## Labor Market Analysis: San Diego County

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November 2018

### Summary

According to available labor market information, there is a small demand for more *Chemical Technicians*. This occupation has less labor market demand in San Diego County than the average occupation. The regional average demand for an occupation is 275 annual job openings. *Chemical Technicians* has a labor market demand of 76 annual job openings. However, this occupation's entry-level wages and median earnings are higher than the Self-Sufficiency Standard, suggesting that students who successfully complete a program and obtain employment will earn living wages. No awards or supply data have been reported, suggesting that there is an opportunity for the county's community colleges to increase the number of awards for *Chemical Technicians*.

The following list summarizes findings from the labor market analysis for *Chemical Technicians*:

- Between 2017 and 2022, *Chemical Technicians* are projected to increase by seven jobs or one percent.
- Employers in San Diego County will need to hire 76 workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.
- Between 2010 and 2017, there was an average of 180 online job postings per year for *Chemical Technicians* in San Diego County.
- *Chemical Technicians* earn median hourly earnings of \$22.76; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour.
- According to the California Community Colleges Chancellor's Office Management Information System (MIS) Data Mart, there are two Taxonomy of Programs (TOP) codes associated with this occupation: Chemical Technology (095400) and Laboratory Science Technology (095500).
- Comparing labor demand (annual openings) with labor supply suggests that there is a supply gap for this occupation in San Diego County, with 76 annual openings and no awards. Comparatively, there are 697 annual openings in California and 26 completions.
- Between January 1, 2015 and December 31, 2017, the top five employers in San Diego County for this occupation were University of California, Gilead Sciences, Pfizer, Illumina Incorporated and VWR International.

- The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is an associate degree.

This report provides labor market information in San Diego County for the following occupational code in the Standard Occupational Classification (SOC)<sup>1</sup> system:

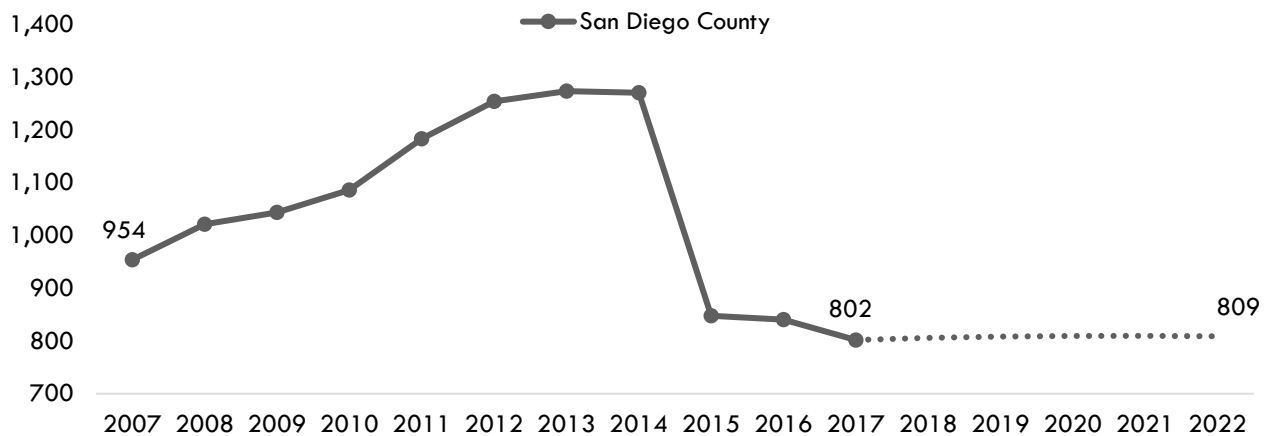
**Chemical Technicians (SOC 19-4031):** Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences. Sample reported job titles include:

- Formulator
- Research and Development Technician
- Laboratory Technician (Lab Tech)
- Laboratory Tester (Lab Tester)
- Quality Control Technician (QC Technician)
- Analytical Technician
- Water Quality Technician
- Senior Laboratory Technician
- Research Technician

## Projected Occupational Demand

Between 2017 and 2022, *Chemical Technicians* are projected to increase by **seven** jobs or one percent (Exhibit 1). Employers in San Diego County will need to hire **76** workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.

**Exhibit 1: Number of Jobs for Chemical Technicians (2007-2022)<sup>2</sup>**



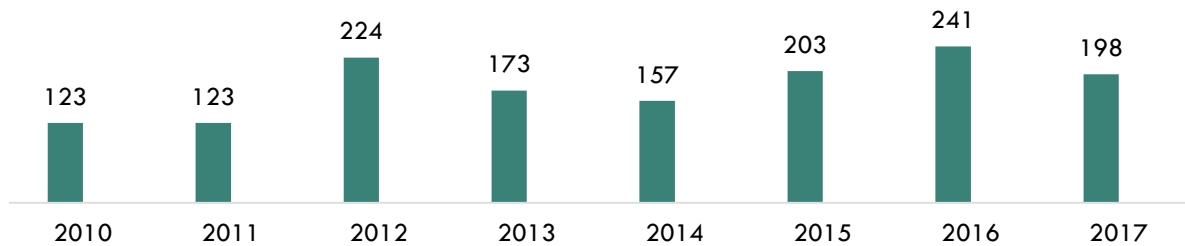
<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](http://bls.gov/soc).

<sup>2</sup> Economic Modeling Specialists, Int'l. (EMSI). San Diego (6073). 2018.03 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2007-2022.

## Online Job Postings

Between 2010 and 2017, there was an average of 180 online job postings per year for *Chemical Technicians* in San Diego County (Exhibit 2).

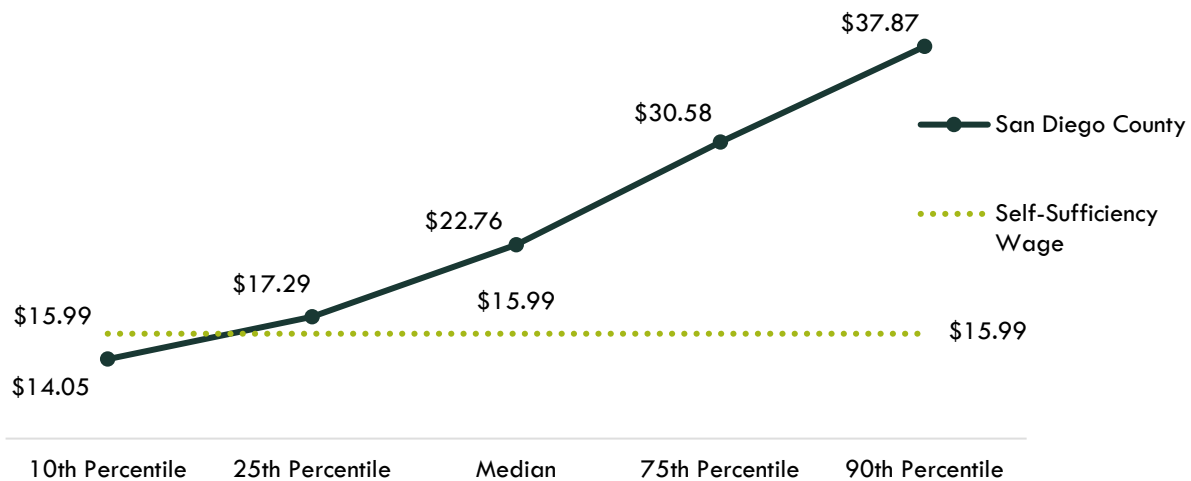
**Exhibit 2: Number of Online Job Postings for *Chemical Technicians* in San Diego County (2010-2017)<sup>3</sup>**



## Earnings

*Chemical Technicians* earn median hourly earnings of \$22.76; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3).<sup>4</sup>

**Exhibit 3: Hourly Earnings for *Chemical Technicians* in San Diego County<sup>5</sup>**



<sup>3</sup> Labor Insight Jobs. Burning Glass Technologies. San Diego, CA. Full years 2010-2017.

<sup>4</sup> The self-sufficiency wage in San Diego for one adult is \$15.99 (<https://insightccd.org/2018-self-sufficiency-standard>).

<sup>5</sup> EMSI. San Diego (6073). 2018.03 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

## Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of related program completers/graduates/awards in San Diego County. According to the California Community Colleges Chancellor's Office Management Information System (MIS) Data Mart, there are two Taxonomy of Programs (TOP) codes associated with this occupation: Chemical Technology (095400) and Laboratory Science Technology (095500) (Exhibit 4).

### Exhibit 4: Related TOP Code in San Diego County

#### SOC 19-4031: Chemical Technicians

TOP 095400: Chemical Technology

TOP 095500: Laboratory Science Technology

According to TOP data, no colleges supply the region with awards for this occupation (Exhibit 5).

### Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)

TOP6	TOP6 Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
095400	Chemical Technology	0	0	0
095500	Laboratory Science Technology	0	0	0
			Total	0

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>6</sup> suggests that there is a **supply gap** for this occupation in San Diego County, with **76** annual openings and no awards. Comparatively, there are **697** annual openings in California and **26** completions<sup>7</sup> (Exhibit 6).

**Exhibit 6: Labor Demand (Annual Openings) Compared to Labor Supply (Average Annual Awards)**

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	76	0	<b>76</b>
California	697	26	<b>671</b>

**Please note:** This is a basic analysis of supply and demand of labor. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed. Additionally, the data does not include workers who are currently in the labor force who could fill these positions or workers who are not captured by publicly available data.

## Student Outcomes

Based on information in the CTE LaunchBoard, students who took courses in the related TOP code exhibited the following outcomes (Exhibit 7).

**Exhibit 7: Strong Workforce Program Metrics for TOP 095400: Chemical Technology in the San Diego-Imperial Region (PY2015-16)**

Metric	San Diego-Imperial	California
Number of course enrollments <sup>8</sup>	N/A	470
Completed 12+ CTE Units in One Year <sup>9</sup>	N/A	67
Completed 48+ CTE Contact Hours in One Year <sup>10</sup>	N/A	N/A

<sup>6</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

<sup>7</sup> EMSI. San Diego (6073). 2018.03 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

<sup>8</sup> The number of enrollments in courses assigned to the TOP code in the selected year.

<sup>9</sup> The number of students who completed 12 or more credit CTE units.

<sup>10</sup> The number of students who completed 48 or more noncredit CTE instructional contact hours.

Metric	San Diego-Imperial	California
Number of students who got a degree or certificate <sup>11</sup>	N/A	N/A
Number of students who transferred <sup>12</sup>	N/A	N/A
Employed in the second fiscal quarter after exit <sup>13</sup>	N/A	80%
Employed in the fourth fiscal quarter after exit <sup>14</sup>	N/A	75%
Job closely related to field of study <sup>15</sup>	N/A	N/A
Median earnings in the second fiscal quarter after exit <sup>16</sup>	N/A	\$7,198
Median change in earnings <sup>17</sup>	N/A	161%
Attained a living wage <sup>18</sup>	N/A	N/A

## Top Employers and Work Locations

Between January 1, 2015 and December 31, 2017, the top five employers in San Diego County for this occupation were [University of California](#), [Gilead Sciences](#), [Pfizer](#), [Illumina Incorporated](#) and [VWR International](#) (Exhibit 8).

### Exhibit 8: Top Employers in San Diego County for Chemical Technicians

Top Employers	
<ul style="list-style-type: none"> <li>• University of California</li> <li>• Gilead Sciences</li> <li>• Pfizer</li> <li>• Illumina Incorporated</li> <li>• VWR International</li> </ul>	<ul style="list-style-type: none"> <li>• Ionis Pharmaceuticals, Inc.</li> <li>• Pacira Pharmaceuticals</li> <li>• Scripps Institution of Oceanography</li> <li>• Univeristy of California San Diego Extension</li> <li>• Grossmont-Cuyamaca Community College District</li> </ul>

<sup>11</sup> The number of unduplicated students who earned a locally-issued certificate, Chancellor's Office approved certificate, associate degree, and/or California Community Colleges bachelor's degree in the selected TOP code.

<sup>12</sup> Students who took non-introductory courses or completed a California Community Colleges Chancellor's Office award in the selected TOP code in selected year who subsequently enrolled for the first time in a four-year institution the following year.

<sup>13</sup> Among all exiters with a valid SSN, the percentage who were employed two quarters after exiting California Community Colleges.

<sup>14</sup> Among exiting students with a valid SSN, the percentage who were employed four quarters after exiting California Community Colleges.

<sup>15</sup> Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

<sup>16</sup> Among exiting students, the median second-quarter earnings one year after the year in which they exited California Community Colleges.

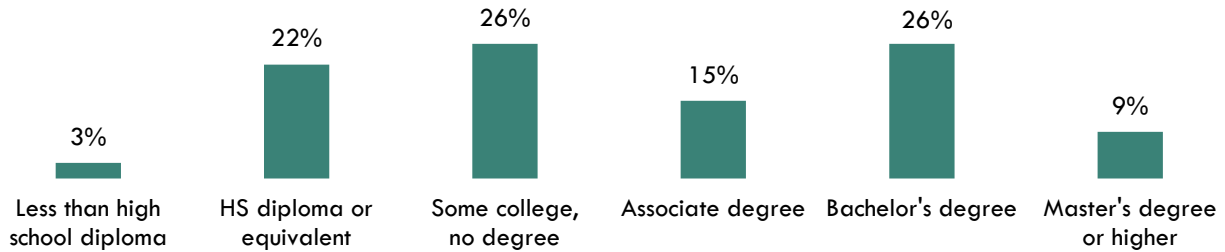
<sup>17</sup> Among exiting students with a valid SSN, the percentage change in earnings one year before and one year after exiting California Community Colleges.

<sup>18</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

## Skills, Education and Certifications

Exhibit 9 indicates the educational attainment for the occupation found currently in the national labor force. The typical on-the-job training for this profession is moderate-term on-the-job training. The typical entry-level education is an associate degree.<sup>19</sup>

**Exhibit 9: National Educational Attainment of Chemical Technicians<sup>20</sup>**



\*May not add to 100% due to rounding.

Exhibit 10 lists the top specialized, soft and software skills that appeared in online job postings between January 1, 2015 and December 31, 2017.

**Exhibit 10: Top Skills for Chemical Technicians in San Diego County<sup>21</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>Chemistry</li> <li>Experiments</li> <li>Biochemistry</li> <li>High-Performance Liquid Chromatography (HPLC)</li> <li>Biotechnology</li> </ul>	<ul style="list-style-type: none"> <li>Research</li> <li>Communication Skills</li> <li>Organizational Skills</li> <li>Troubleshooting</li> <li>Detail-Oriented</li> </ul>	<ul style="list-style-type: none"> <li>Microsoft Excel</li> <li>Microsoft Word</li> <li>Microsoft PowerPoint</li> <li>Microsoft Project</li> <li>Word Processing</li> </ul>

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<sup>19</sup> EMSI. San Diego (6073). 2018.03 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

<sup>20</sup> Bureau of Labor Statistics, Educational attainment for workers 25 years and older by detailed occupation. [bls.gov/emp/ep\\_table\\_111.htm](https://bls.gov/emp/ep_table_111.htm).

<sup>21</sup> Labor Insight Jobs. Burning Glass Technologies. San Diego, CA. Full years 2015-2017.

### **Important Disclaimers**

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.