

COMPETENCY MODEL FOR CHEMIST (7833)

The following competencies have been identified as those that best separate superior from satisfactory job performance in the class of **CHEMIST**. (Numbers refers to the order of the competencies in the Competency Bank.)

1. Reading Comprehension
2. Mathematics
7. Self-Management
8. Safety Focus
20. Job Knowledge
35. Teamwork
40. Credibility
44. Follow Written Directions

On the following pages are descriptions of each competency, including a definition, the level of the competency required for the class (*italicized*, **bolded**, and underlined), examples of behavioral indicators, and satisfactory and superior performance levels.

1. READING COMPREHENSION – Comprehends and correctly applies information presented in written form. Makes correct inferences; draws accurate conclusions.

Level of Competency Required by Job:

Level 1: Concrete, specific job-related information (work orders; instructions; material/equipment labels)

Level 2: General information related to field of work and assignments; (articles in trade publications; technical/instructional manuals; memos; letters; e-mails; reports)

Level 3: Abstract/complex information (highly technical articles/ reports in specialized area; legal or other regulatory material)

Examples of Behavioral Indicators:

- Follows written instructions correctly.
- Learns information presented in writing.
- Identifies relevant written information.
- Interprets written legal regulatory material accurately.

Performance Levels:

Satisfactory

Reads instructions correctly. Learns from manual and other printed material.

Superior

Learns from manual and may answer others' questions. Explains information presented in written form to others.

2. MATHEMATICS – Performs arithmetic or higher-level mathematical computations accurately.

Level of Competency Required by Job:

Level 1: Perform arithmetic computations (add, subtract, multiply, divide, ratios, percentages).

Level 2: Use algebra (substitute numbers for letters in a formula), geometry (angles, distances, area), and/or descriptive statistics (mean/median/mode, standard deviation, range).

Level 3: Apply and interpret calculus, inferential statistics (t-tests, correlations, ANOVA, multiple regression) or other very high level mathematics.

Examples of Behavioral Indicators:

- Quickly and accurately performs arithmetic computations.
- Appropriately selects and applies formulas for stated purpose.
- Correctly identifies an appropriate analysis for a specific purpose and selects the appropriate computer program for computation.
- Accurately interprets and presents results of mathematical/statistical computations.

Performance Levels:

Satisfactory

Knows mathematical requirements of the job and performs them correctly. Verifies work to ensure accuracy.

Superior

Identifies additional opportunities for the application of mathematics in work. Answers questions/trains others to assist them in their use of mathematics.

7. SELF MANAGEMENT – Organizes and plans for task accomplishment; manages time and works diligently to complete assigned work/fulfill responsibilities.

Level of Competency Required by Job:

Level 1: Order tasks for efficient performance; maintain awareness of time allotted and deadlines in order to ensure they are met.

Level 2: Plan and perform work in a way that maximizes efficient performance; establish and adjust priorities to ensure timely completion of most critical assignments.

Level 3: Allot time to responsibilities proportional to their prominence, priority, and impact.

Examples of Behavioral Indicators:

- Performs only work activities during work hours.
- Alters means of performing work when original approach proves to waste time.
- Keeps a “to do” list (with indication of priority and deadlines, if necessary).
- Requests assistance as necessary when it becomes clear that work will not be completed on time.
- Demonstrates a record of progress with respect to all assignments/responsibilities.
- Uses optimal means of communication for efficiency and effectiveness.

Performance Levels:

Satisfactory

Conducts self while at work in a manner that ensures work will be completed as scheduled, or provides explanation or secures assistance or adjustment of schedule if it will not be.

Superior

Seeks efficiencies in doing work to maximize productivity. Plans work carefully and follows the plan or makes adjustments if it is disrupted. Maintains personal responsibility for all work accomplishment.

8. SAFETY FOCUS – Performs work in a way that minimizes risk of injury to self or others.

Level of Competency Required by Job:

- Level 1: Maintain awareness of unsafe conditions and actions to avoid injury.
- Level 2: Follow safety rules/procedures; avoid known hazards in the work environment.
- Level 3: Carefully follow safety rules and procedures and consistently use all necessary safety equipment.**

Examples of Behavioral Indicators:

- Wears seat belt.
- Ensures safe physical work environment by taking actions such as eliminating unstable stacks of materials, closing drawers so filing cabinets will not tip over, and keeping pathways clear of tripping hazards.
- Reviews safety procedures before beginning each job with known hazards.
- Follows safety procedures while performing work even when it takes more time.
- Uses safety equipment such as goggles, gloves, and earplugs as required or warranted.
- Frequently checks safety equipment for proper condition and operation.

Performance Levels:

Satisfactory

Maintains awareness of personal safety to avoid injury or property damage during all work activities.

Superior

“Safety first.” Places avoidance of injury or property damage above all other job requirements. Mentions the need to follow safe work practices to co-workers. Actively seeks ways to avoid injury.

Safety Focus Areas

1. Knowledge of the guidelines of regulatory agencies such as the United States Environmental Protection Agency (USEPA), the State Department of Health Services, Cal/OSHA, and State Water Resources Control Board related to standard sampling procedures, including concentrations of constituents in a sample, Quality Assurance sampling requirements, and documentation requirements sufficient to perform sampling duties safely and in accordance with all pertinent regulations.
2. Knowledge of Cal/OSHA regulations related to proper storage and labeling of chemicals, hazardous material disposal, how to extinguish fires, how to handle hazardous or chemical spillage, to ensure a safe working environment.
3. Knowledge of Cal/OSHA regulations related to the operation, proper use, and inspection requirements of safety devices, such as safety showers, fire extinguishers, eye wash stations, and personal protective equipment, in order to maintain a safe working environment.
4. Knowledge of the properties and compatibility of chemicals such as flammability, corrosiveness, solubility, volatility and toxicity, sufficient to safely mix chemicals in the proper order, location, and volume and ensure a safe working environment.

20. JOB KNOWLEDGE – Knows information required to perform a specific job. Includes both widely available courses of study (for example, chemistry, human resources management, graphic arts) and City-specific information (parking regulation and ticketing practices; purchasing procedures; provisions of the City Charter).

Level of Competency Required by Job:

Level 1: ***Knowledge is concrete, factual, and/or procedural and may be defined by the organization. Situations in which it is applied are quite consistent.***

Level 2: *Knowledge is substantive and may be defined by an external trade, field, or profession. Situations in which it is applied vary and, as such, require breadth and depth of understanding.*

Level 3: Knowledge is abstract, conceptual, and/or complex and may be supported by a well-defined academic discipline or authoritative sources (e.g., laws, ordinances, government guidelines/regulations/codes). Situations in which it is applied may vary greatly or be novel.

Examples of Behavioral Indicators:

- Performs work correctly/avoids technical (job content related) errors.
- Answers technical questions about work accurately.
- Asks few technical questions about the performance of routine work activities.
- Offers advice (“coaching”) to new employees regarding their work.
- Develops training programs for other employees.
- Sought out as a source of information by others.

Performance Levels:

Satisfactory

Sufficient job knowledge to perform work correctly independently. Answers technical questions about work correctly.

Superior

Expertise in technical job information sufficient to serve as a resource to others. May develop training manuals/ programs and/or give internal and/or external presentations related to work.

Job Knowledge Areas

1. Knowledge of biology and microbiology concepts sufficient to perform chemical analyses and interpret results to ensure proper testing.
2. Knowledge of wet chemistry to measure the properties of water such as conductivity, pH, turbidity, and hardness in order to conduct sample preparation procedures and run appropriate analyses.
3. Knowledge of polymer chemistry sufficient to determine what level of active ingredient in polymer is appropriate for treatment processes and to determine dosage of materials requested from vendors.
4. Knowledge of the water reclamation process as related to issues such as ground water replenishment and where reclaimed water can be used throughout the City by both departments and citizens in order determine if sample meets quality standard based on analysis results and intended use of water.
5. Knowledge of the proper quality and composition of effluent water and its content of pollutants, such as how much bacteria and toxic substances the water should contain, as related to its effect on beaches and marine life in order to determine sample meets water quality standards based on analysis results.
6. Knowledge of water and wastewater treatment and distribution systems sufficient to ensure compliance with regulations and to recommend revisions while promoting efficiency throughout the treatment process.
7. Knowledge of the pertinent sample matrix and how it may interfere with analytical testing in order to limit problems with analysis and ensure accuracy and high quality data.
8. Knowledge of Quality Assurance regulations, procedures, and appropriate documentation related to sample testing and methodology as directed by the USEPA and standard operating procedures (SOPS) to ensure quality data sampling and analyses.
9. Knowledge of proper sample collection procedures, including the proper types of containers, storage temperature, preservatives, sampling points, frequency, and handling procedures in order to ensure proper sample collection methodology and to determine acceptance or rejection of a sample collected by another party.
10. Knowledge of stoichiometry, as related to the preparation of reagents and understanding of chemical reactions in order to properly make solutions used in various analyses and laboratory tasks.
11. Knowledge of proper use and handling of basic laboratory equipment such as volumetric glassware, analytical balances, in order to set up and calibrate instruments as well as perform required analysis and troubleshooting lab equipment.
12. Knowledge of fundamental laboratory procedures, such as dilution, distillation, extraction, evaporation, concentration, isolation, filtration, and titration in order to perform appropriate analyses.

13. Knowledge of basic physical principles, such as light absorption, heat, wavelength, fluorescence, and viscosity in order to perform appropriate analyses and interpret related data.
14. Knowledge of analytical chemistry, such as the use and function of analytical instruments including UV/visible spectrophotometers and Gas Chromatographs in order to operate, troubleshoot and interpret output from each type of instrument.
15. Knowledge of organic chemistry as related to types of organic compounds, and the relationships of their structure and function to determine analytical procedures, data interpretation and sample preparation.

35. TEAMWORK – Interacts effectively with others to achieve mutual objectives; readily offers assistance to others to facilitate their goal accomplishment.

Level of Competency Required by Job:

Level 1: ***Work effectively as a member of a work unit or project team. Readily offer assistance to others when they have too much work or have too little.***

Level 2: *Work effectively as a team member in which different people have different roles/responsibilities and perspectives. Identify points for collaboration with co-workers; readily offer and request assistance.*

Level 3: *Work effectively as a part of an interdependent team (your work gets done only if the work of the whole team is done; evaluation of team performance is more relevant than individual performance).*

Examples of Behavioral Indicators:

- Discusses work-related matters with co-workers.
- Offers and requests assistance readily.
- Offers and is receptive to suggestions.
- Identifies problems with workflow that will prevent team from accomplishing its goals.
- Provides constructive criticism and feedback to team members to improve overall functioning of team.
- Assigns credit to team for accomplishments.

Performance Levels:

Satisfactory

Cooperates with co-workers and fulfills responsibilities as a member of a project team. Maintains a focus on common objectives and offers and requests assistance readily.

Superior

Sees the team as a whole; acknowledges that performance of the team is what in reality is evaluated by others. If anyone fails, everyone on the team fails.

40. CREDIBILITY – Is truthful and sincere; objectively and clearly provides all pertinent information rather than being vague, omitting negative information or only stating what listeners “want to hear.”

Level of Competency Required by Job:

Level 1: Freely and openly share accurate job-related information with co-workers.

Level 2: Provide complete, accurate information to other City employees and members of the public.

Level 3: Represent department to the Mayors’ Office, City Council, City Commissions, and/or department heads, and/or to external organizations, professional associations, and/or the media.

Examples of Behavioral Indicators:

- Admits mistakes.
- Information provided is consistent (not contradictory or stating different things to different people).
- Answers questions directly and thoroughly.
- Shares credit for achievements.
- Acts in the best interest of the organization, not self interest.

Performance Levels:

Satisfactory

“Tells the complete story” from the onset. Is forthcoming with full information when questioned. Statements are consistent. Readily admits mistakes and gives credit to others.

Superior

Information provided is complete and accurate, and includes any negative information or information contrary to self interest. Does not attempt to be vague or put a “spin” on negative information to make it appear more positive.

44. FOLLOW WRITTEN DIRECTIONS – Performs work accurately as directed in writing.

Level of Competency Required by Job:

Level 1: Perform tasks assigned in writing.

Level 2: Perform work after reading instructional manual.

Level 3: Perform work after completion of training modules or programs presented in writing.

Examples of Behavioral Indicators:

- Correctly completes work assigned in writing.
- Answers questions and/or explains work to others who received the same instructions.
- Learns and applies information presented in writing (instruction manual; training program).
- Correctly infers details of work to be performed that were unclear or omitted as presented in writing.

Performance Levels:

Satisfactory

Correctly performs work assigned or for which training was provided in writing.

Superior

Understands instructions and training materials presented in writing to the extent that is able to answer questions or explain to others. Correctly infers unclear or omitted details as presented in writing.