

Missouri Department of Transportation Job Description

Job Title: Chemist

Title Code: R04780

Salary Grade: 7

Exemption Status: Non-Exempt

Supervisory Responsibilities: None

District/Division: Central Office – Construction and Materials

Effective Date: 01-01-2025

Replaces (Effective Date): 08-01-2024

General Summary

The chemist conducts entry-level chemical and physical tests and analyses by gravimetric, volumetric, and potentiometric methods, using specialized instruments to determine properties and ensure compliance with specifications. Responsibilities are performed under direct supervision.

Minimum/Required Qualifications

Bachelor's Degree: Chemistry or related with a Chemistry minor.

OSHA 10-Hour Certification required within 90 days.

Special Working Conditions/Job Characteristics

Job requires exposure to moderately adverse and undesirable environmental conditions.

Job requires moderate physical activity.

Job may require operation of vehicles to plow snow and spread ice control materials.

A postsecondary degree is the best measure to ensure candidates possess required knowledge of elemental properties (organic/inorganic), cement digestion and analysis, instrumental analysis of unknowns using inductively Coupled Plasma (ICP) Spectrophotometry or FTIR Spectroscopy, analysis of coatings using Toxic Characteristics Leaching Procedure (TCLP), use of acids and bases, dilution determinations, needed concentrations of chemicals, bench chemistry, and chemical analysis test reporting.

Examples of Work

1. Conducts quantitative and qualitative analyses of bituminous materials, paints, soil fertility, metals, concrete, reflective materials, and other materials used in the construction and maintenance of state highways.
2. Performs calculations, maintains records, tracks materials, and prepares reports on all testing activities and results.
3. Demonstrates test procedures during on-site American Association of State Highway and Transportation Officials Materials Reference Laboratory and the Cement and Concrete Reference Laboratory inspections, maintains assigned Quality Systems Manual, and accurately analyzes proficiency samples as required to maintain national laboratory accreditation.
4. Follows procedures to properly handle and dispose of hazardous and carcinogenic waste generated by laboratory testing.
5. Calibrates, repairs, and maintains precision test equipment including pycnometers, pH meters, thermometers, and other test equipment.
6. Utilizes specialized testing equipment such as infrared spectrophotometer and inductively coupled plasma spectrophotometer to conduct tests necessary to increase proficiency in equipment usage.
7. Monitors supplies and equipment for availability and requests the re-supply of chemicals and glassware as needed.
8. Provides technical support and training to department personnel.
9. Lifts and moves barrels, boxes, or containers of chemicals and samples; items are lifted or moved by hand, cart, or other methods.
10. Performs other responsibilities as required or assigned.