

# Missouri Department of Transportation Job Description

**Job Title:** Intermediate Chemist

**Title Code:** R04072

**Salary Grade:** 8

**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 intermediate chemist conducts varied and moderately complex 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 moderate supervision.

## **Minimum/Required Qualifications**

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

Two years of experience in chemical testing procedures.

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, cements, paints, petroleum products, metals, concrete, soils, reflective materials, wood, and other materials used in the construction and maintenance of the state highway system.
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. Calibrates, repairs, and maintains precision test equipment including pycnometers, pH meters, thermometers, and other test equipment.
5. Contacts and maintains communications with cement, fly ash, slag, power generating stations, sign and related.
6. Inspects established and new, in state and out-of-state, manufacturing facilities for cement, fly ash, and GGBFS for compliance with existing and new qualifications.
7. Provides technical support and training to department personnel.
8. Follows necessary procedures to properly handle and dispose of hazardous and carcinogenic waste generated by laboratory testing.
9. Utilizes specialized testing equipment such as infrared spectrophotometer and inductively coupled plasma spectrophotometer to conduct tests necessary to increase proficiency in equipment usage.
10. Monitors supplies and equipment for availability and requests the re-supply of chemicals and glassware as needed.
11. Performs other responsibilities as required or assigned.