

Iowa Department of Administrative Services – Human Resources Enterprise
Job Classification Description

Materials Technician 3

Definition

Performs technical on-site field or technical laboratory sampling, testing, and inspection of materials used in highway construction and maintenance projects; performs related work as required.

The work examples and competencies listed below are for illustrative purposes only and not intended to be the primary basis for position classification decisions.

Work Examples

Performs materials sampling, inspection, and testing activities in the central laboratory or assigned field area in order to assure compliance with all requirements for sampling and testing through the use of complex plans and specifications.

Determines by using various testing devices and techniques: the deflection of the sub-grade, sub-base, or surface courses; the rideability characteristics of road surfaces; the profile of flexible and rigid bases or surfaces; the load bearing capacity of pilings on construction sites; and the skid resistance of both old and new road surfaces.

Calibrates equipment utilized in the field and central laboratory testing and inspection of materials.

Gathers samples and data pertaining to the consistency and depth of Portland cement and asphaltic concrete pavements.

Maintains records of materials sampled to include the date, time, location, type of material, and any tests required to document results.

Inspects operations in an assigned group of quarries to insure adherence to specification limits; conducts progress inspections and final sampling and testing procedures.

Inspects and grades aggregates produced in an assigned area.

Performs a variety of testing and inspection activities on materials and/or products such as: aggregates, soil samples, asphalt concrete, Portland cement concrete, metals, paints, textiles, and automotive products to determine the various measurements and physical properties specified for suitability, safety, and effectiveness of use in the construction and maintenance of highways.

Designated positions perform duties related to snow and ice removal, which include: accessing the Roadway Weather Information System (RWIS), weather reports, and other related computer software applications to record and receive data and make decisions regarding times, temperatures, weather conditions, and material usage to operate snow and ice removal equipment such as, but not limited to single or tandem axle dump trucks that may be equipped with tailgate or hopper spreader, straight blades or V-plows, wing plows, and underside ice blades; includes preparing and spreading abrasives and de-icing chemicals on the roadway by using a loader for mixing abrasives and chemicals; may perform other maintenance duties as assigned.

Competencies Required

Knowledge:

- Production and Processing – Raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- Building and Construction – Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
- Mechanical – Machines and tools, including their designs, uses, repair, and maintenance.
- English Language – The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Basic Arithmetic – Addition, subtraction, multiplication, and division.

Abilities:

- Control Precision – Quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Manual Dexterity – Quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- Speech Clarity – Speak clearly so others can understand.
- Speech Recognition – Identify and understand the speech of another person.
- Deductive Reasoning – Apply general rules to specific problems to produce answers that make sense.
- Problem Sensitivity – Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

Skills:

- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Operation and Control – Controlling operations of equipment or systems.
- Operation Monitoring – Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Reading Comprehension – Understanding written sentences and paragraphs in work related documents.
- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Monitoring – Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

Minimum Qualification Requirements

Applicants must meet at least one of the following minimum requirements to qualify for positions in this job classification:

- 1) Three years of full-time experience in the sampling, and testing of materials, and/or inspection of materials used in highway construction and maintenance projects.
- 2) All of the following (a and b):
 - a. One year of full-time work experience (as described in number one); and
 - b. A total of two years of education and/or full-time work experience (as described in part a), where 30 semester hours or the equivalent of college, university, or technical school course work with an emphasis in mathematics, engineering, metallurgy, geology, or chemistry equals one year of full-time experience.
- 3) All of the following (a and b):
 - a. One year of full-time work experience (as described in number one); and
 - b. An Associate of Applied Science degree, a certificate, or equivalent in Civil Engineering Technology from an accredited community college.
- 4) Graduation from an accredited four-year college or university with a bachelor's degree in chemical, civil, construction, environmental, materials, mechanics, structural or transportation engineering or in engineering management.
- 5) Possession of a verification of graduation with major course work in chemical, civil, construction, environmental, materials, mechanics, structural or transportation engineering or in engineering management.

Notes

Applicants hired with verification of graduation will be required to graduate with a bachelor's from an accredited four-year college or university within 10 months of hire.

Designated positions in this class require possession of a valid Commercial Learner's Permit upon hire. Within a timeframe determined by the appointing authority, a valid Class A Commercial Driver's License with the required endorsements and applicable restrictions must be obtained and subsequently maintained to continue employment.

If a CDL is not required, designated positions are required to have and maintain a minimum of a valid Class C Non-Commercial Operator's License.

In conjunction with Title 49 of the Code of Federal Regulations (parts 40 and 382), designated positions in this job class require a pre-employment drug screen and will require ongoing participation in the employer's random drug and alcohol testing program and will be subject to the regulations regarding the Federal drug and alcohol program.

Prior to starting employment, all persons are required to have a post offer pre-employment physical verifying the physical ability to perform the duties described.

Positions require certification for testing materials and operating specialized equipment as required by the Iowa Department of Transportation's Technical Training and Certification Program for Highway Materials and Construction; and/or other certifications as required.

Employees must be able to travel and may be required to stay away from home overnight during assignments.

Employees in designated positions must be able to work up to 16 consecutive hours.

Effective date: 09/22 RH