

Job Class Profile: Materials Inspector I**Pay Level: CG-29 Point Band: 622-675**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	4	4	4	5	3	3	4	2	5	
Points	187	67	25	24	90	65	83	43	54	638

JOB SUMMARY

Responsible for inspecting, sampling and testing materials used in highway maintenance and road construction to ensure specialized requirements are met.

Key and Periodic Activities

- Performs several tests on samples of highway construction materials and obtains results on aggregate to determine if it meets highway/concrete specifications.
- Conducts laboratory testing (i.e. sieve analysis on different classifications of materials such as Class A, Wintersand, Maintenance, etc. to determine if it is within the required gradation specifications and inspects materials for highway construction.
- Conducts random samples from contractor to check on gradation.
- Obtains and tests asphalt cores from road for densities.
- Calibrates and monitors asphalt plant production.
- Tests the percentage of compaction of aggregate material and concrete used in bridge construction.
- Documents and prepares technical data; reviews materials testing reports.
- Transports samples from the worksite to laboratory.
- Repairs and maintains equipment.
- Mentors and coaches junior staff.

SKILL**Knowledge****General and Specific Knowledge:**

- Knowledge of up-to-date testing procedures and methods and construction specifications.
- Specific knowledge of inspection techniques and procedures.
- Knowledge of quality control and quality assurance programs.

Formal Education and/or Certification(s):

- Minimum: 3 year Specialized Post-Secondary Diploma in Civil Engineering Technology.

Years of Experience:

- Minimum: 2 – 3 years.

Competencies:

- Ability to calibrate and repair machinery.
- Safe operation of motor vehicle.
- Ability to operate a computer.
- Written communication skills.

Interpersonal Skills

- A range of interpersonal skills are used to explain specifications to contractors and inform them of factors affecting the outcome of sample results, interacting with people to discuss issues which periodically may see differences of opinion.
- Communications occur with peers, employees within and outside the organization.
- Most significant contacts are with: district engineers/managers/contractors to relay testing results and deal with issues; supervisor to relay results of testing and determine work priorities; co-workers to assist with completion of tasks; and consulting engineers and geotechnical engineering firms.

EFFORT**Physical Effort**

- The demands of the job result in considerable fatigue, requiring periods of rest.
- Lifting or moving objects or physically handling materials between 10 - 25 lbs. such as asphalt, rock, aggregate and concrete samples is a regular occurrence.
- Standing and walking is required for extended periods of time.
- Using hand tools that require accurate control and steadiness and the use of gross motor skills for walking and other activities also occur on a regular basis.

Concentration

- **Visual, auditory** and other sensory demands such as **touch** and **smell** are present on a regular basis when ensuring the safety of others on the highway, reading and interpreting calculations for accuracy, using pavement evaluation tools and instruments, listening for trucks or machines, working with roller operators and spreading equipment, preparing samples for testing, being cognizant of hot surfaces during inspection and detecting propane gas leaks.
- Preparing representative samples and report writing require **eye/hand coordination**.
- Activities such as driving, operating testing equipment and paperwork can be **repetitious and require alertness**.
- **Time pressures and deadlines** are experienced when testing and reporting results of samples to engineers and contractors. Such tests have to be conducted within specified timelines.
- **Lack of control over work pace** is usually dictated by a substantial amount of material arriving at the same time and required to be tested or as a result of problems encountered with vehicles (i.e. damage and/or malfunctions).
- Regularly requires **higher than normal levels of attentiveness/alertness** when collecting

samples near highway traffic and around heavy construction equipment and when using dangerous compounds such as molten sulphur.

- **Exact results and precision** are also a regular requirement when conducting calculations, testing and determining asphalt percentages.

Complexity

- Tasks and activities are typically similar and well defined requiring the use of similar skills and knowledge. At times different materials and types of testing is performed, however these also require the use of similar skills and knowledge.
- Problems tend to be well defined and can be addressed by following procedures and/or guidelines.
- Reference material available include specification book, Canadian Standards Association (CSA) and the American Society for Testing of Materials (ASTM).

RESPONSIBILITY

Accountability and Decision-Making

- Work is usually performed without close supervision but there is some checking. Will act with independence and judgement to interpret results and recommend corrective action.
- Without formal approval can accept or reject crushed material, access pavement test results and report to engineer any deficiencies, and alter settings at asphalt plant and crushing operations to receive proper mix.
- Supervisory approval is required to change mix designs.
- A high degree of discretion is exercised in interpreting specifications.

Impact

- Impacts generally affect the department, with customers/clients/general public and with external stakeholders such as contractors.
- Work activities impact finances, equipment, processes, systems, material resources and health and safety.
- Testing determines whether or not materials will be accepted or rejected. The consequences of a mistake or error can impact the organization, the contractor and the general public.
- While clear instruction is provided to inspectors through the department's specifications and procedures manuals, there is some discretion used for interpreting specifications and accurate testing is critical.

Development and Leadership of Others

- Not responsible for full-time direct supervision of staff.
- Provides advice, guidance, orientation and on-the-job training to junior staff.

WORKING CONDITIONS

Environmental Working Conditions

- Safety equipment such as safety vests, hard hats, steel-toed boots, goggles, ear protection,

gloves, and splash aprons are required. Other precautions include fire extinguishers, eyewash stations, pylons, truck mounted lights, flag person/signs and chemical showers.

- There is limited likelihood for injuries or illnesses resulting from hazards if normal precautions are followed.
- Travel is required on a regular basis to perform tasks and activities.
- Regular exposure to unusual/distracting noise, dirt, dust, glare, fumes, limited ventilation and lighting, hazardous chemicals, toxic or poisonous substances, temperature extremes, adverse weather conditions, heavy machinery, physical dangers and sharp objects is experienced.