

ELECTRON MICROSCOPIST

DEFINITION

Uses a transmission electron microscope, energy dispersive spectrometer, and related laboratory equipment to perform tests of air and water samples to detect asbestos and qualify and quantify findings.

TYPICAL DUTIES

Uses laboratory equipment, such as a stereo microscope, plasma asher, and vacuum evaporator to prepare air and water samples to be analyzed by electron microscopy.
Conducts qualitative and quantitative analyses of samples suspected of containing asbestos and determines the type and amount of asbestos found.
Analyzes samples by using selected-area electron diffraction to classify asbestos fibers by their diffraction patterns.
Performs x-ray energy dispersive spectrometry to analyze and characterize an individual asbestos fiber's elemental composition.
Operates the electron microscope camera to photograph samples.
Calibrates and aligns the electron microscope and other laboratory equipment and conducts resolution tests to determine quality of microscope operations.
Cleans microscopes and other laboratory instruments by appropriate methods.
Applies District guidelines and governmental quality control standards in performing laboratory work.
Keeps files of laboratory test results and samples.
Requests and maintains related laboratory supplies.
Performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS AMONG RELATED CLASSES

An Electron Microscopist operates a transmission electron microscope and related equipment to conduct tests of air and water samples to detect and classify asbestos.

An Environmental Laboratory Analyst performs complex laboratory analyses and procedures and assists with maintaining the laboratory's quality assurance program.

SUPERVISION

General supervision is received from a Complex Project Manager. No supervision is exercised.

CLASS QUALIFICATIONS

Knowledge of:

Equipment used in the laboratory, such as transmission electron microscope, energy dispersive spectrometer, vacuum evaporator, and plasma asher
Asbestos sample preparation for transmission electron microscope analysis
Laboratory procedures and related quality control standards
Microscopy methods and techniques

Laboratory record keeping procedures
Current developments in the field of electron microscopic analysis of fibers
Safe laboratory practices and procedures

Ability to:

Conduct meticulous resolution tests of microscope operations
Recognize various types and characteristics of asbestos
Utilize observational skills requiring unusual finesse and interpretation
Perform repetitive procedures
Determine and measure precise differences in shape and size of substances analyzed
Clean, calibrate, and align electron microscopes and related laboratory instruments
Perform standard microscopy methods and procedures without close supervision
Meet the quality assurance, quality control requirements as per the National Voluntary
Laboratory
Accreditation Program

Special Physical Requirement:

Normal color perception

ENTRANCE QUALIFICATIONS

Education:

Twelve semester or equivalent quarter units in chemistry, geochemistry, physics, crystallography, geology, mineralogy, or related courses at a recognized college or university, preferably with courses in microscopy.

Experience:

One year of experience performing transmission electron microscopy.

SPECIAL NOTE:

Employment is subject to medical clearance.

Positions in this classification are subject to pertinent provisions of the General Industry Safety Orders of the California Code of Regulations regarding protective equipment when exposed to hazardous materials, including, but not limited to, asbestos and lead.

Prior to employment, all successful candidates will be required to pass an asbestos medical examination in compliance with the General Industry Safety Orders of the California Administrative Codes.

Requires wearing a negative pressure respirator

This class description is not a complete statement of essential functions, responsibilities, or requirements. Entrance requirements are representative of the minimum level of knowledge, skill, and/or abilities. To the extent permitted by law, management retains the discretion to add or change typical duties of a position at any time, as long as such addition or change is reasonably related to existing duties.

Revised
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MHO