Industrial Hygiene - Strategy to Sampling

Industrial hygiene practices aim to recognize, evaluate and control chemical and physical hazards in the workplace. The participants of this 3 day course will be introduced to the key concepts of industrial hygiene, including how to assess a workplace through the lens of an industrial hygienist to identify hazards. We explore the various methods and types of equipment that can be used to evaluate risk to the worker or workplace, including extensive hands on use direct reading, and analytical based equipment. Participants will review sampling results and how they can be applied to occupational exposure limits, and whether controls in place are effective or needed to protect the worker.

The program is widely recognized for its balance of theory and practical hands on applications.

Learning Objectives

- How to look at the workplace and processes to anticipate where worker exposures are possible or present,
- A basic introduction to Toxicology and its role in establishing legal limits.
- Master those troublesome conversions and IH calculations needed and used in IH reports
- Identify analytical methods, standards and protocols for sampling specific hazards
- Explore & understand when to use direct reading vs lab based sampling analysis
- Recognize the importance of equipment calibration and how to perform them
- Understand and interpret what the results of an IH sampling assessment mean
- How to develop Same Employee Groups (SEGs) and report confidence levels (CI 95)
- Explore & understand when to use direct reading vs lab based sampling analysis
- Gain sufficient knowledge to better direct your external IH to get the maximum information from each study
- See how technology is advancing in the field of IH
- And much more.

Features:

• Direct input of each participant on their wants and needs from the program at the start of the program.

• Scenarios for each hazard type are used to promote recognition of actual workplace situations or events and how an IH would address them.

• Participants will use a wide variety of IH monitoring equipment to gain familiarity and confidence in understanding in their application and use.

• Sufficient equipment to allow for a max of 2 participants per device.

• A course manual complete with resources and usable field data sheets are provided to the participant

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Hazardous Topics Covered in the Program

- Particles and size fractions (inhalable, thoracic, respirable), fibres, and spores
- Gases and vapours
- Noise and Vibration
- Thermal stress (heat and cold)
- Indoor Air Quality (office and production areas)
- Lack of Air Exchange (ventilation)
- Fungal Contamination

3 Day Course Outline

Day 1 AM

Module: Introduction to Industrial Hygiene

- Industrial Hygiene Principles
- Industrial Hygiene taxonomy and abbreviations (there are a lot)
- Legal requirements for undertaking IH surveys

Module: Toxicology

- Human Anatomy and Physiology relating to exposure routes and metabolism of toxic materials
- Toxicology and how occupational exposure limits are established
- Various occupational exposure limits
- Standard exposure limits and conversions (its just math)
- Learn how to read an SDS or find information on a substance

Day 1 PM

Module: Assessment and Preparation for Sampling

- Looking at the workplace and processes through an IH lens.
- Developing an IH Program
- Mapping out processes and # workers impacted
- Establishing a sampling strategy and plan (what are we sampling)
- Identifying methods to conduct sampling (Gov't Reg, ACGIH, OSHA, MDHS, other)
- Type of sampling (Preliminary, grab, short term, long term)
- Precision and Accuracy of methods
- Personal vs Area samples
- Establishing number of samples and establishing SEGs (same exposure groups)
- Single substance, or multiple substances, looking at ways to maximize data per sample.
- Predict problems before they happen, need for representative conditions.

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Day 2
Full Day
5 Hazard Modules (Gas/Vapour; Particles/Fibres; Noise; Heat and Cold Stress, Lighting)
• Discussion on hazard and how to identify its presence in the workplace
• What devices and methods can be employed to monitor the hazard
• Discussion on types of monitoring equipment
• Calibration of equipment and why its critical
• Sample placement on worker or area
• Use of sampling data collection sheets
• Hands on calibration and simulated use of samplers
• Discussion on current technology including App based monitoring systems (where applicable)

Day 3 AM
3 Hazard Modules (IAQ ;Air Change; Fungal)
• Discussion on hazard and how to identify its presence in the workplace
• What devices and methods can be employed to monitor the hazard
• Discussion on types of monitoring equipment
• Calibration of equipment and why its critical
• Sample placement on worker or area
• Use of sampling data collection sheets
• Hands on calibration and simulated use of samplers
• Discussion on current technology including App based monitoring systems (where applicable)

Day 3 PM
Module: Results and Reporting
• Handling samples and use of laboratories
• Results, and how to convert them to worker exposures
• Addressing sample length vs shift length
• Extended shift adjustments (Brief and Scala, IRRST)
• Calculations for multiple chemicals, combining exposures, and other IH calculations (more math for IH)
• IH Reports from informal to formal and internal vs external
• Dealing with issues and assumptions and closing loops
• Recommendations the Good, Bad and Ugly aspects of them
• Use of statistics in IH programs
• IH results to validate controls or need for controls (part of ROI on investment)
• Program review and updating your program

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