

Industrial Hygiene Awareness

What Is Industrial Hygiene?

Industrial hygiene is:

- The art and science of preventing/controlling conditions that may expose people to workplace contaminants and physical agents that can harm their health
- A job title or part of a job description
- A focus area or principle in all occupational health and safety programs

We can use the science of industrial hygiene in all industries to protect workers, their families and the community.

What Does Industrial Hygiene Target?

Contaminants and physical agents that can harm people's health may include:

- Air contaminants (pollution, particles, vapors)
- Chemical hazards (products, pesticides, metals)
- Biological hazards (blood, mold, sewage)
- Physical hazards (noise, temperature, radiation)

Workers may be exposed to contaminants or hazards by:

- Inhalation (breathing things in)
- Ingestion (eating/drinking/smoking contamination)
- Injection (sharp objects and open wounds)
- Absorption (skin/eye/mouth contact)

The health effects of an exposure may be:

- Acute (immediate)
- Chronic (long-term)

The duration and intensity of the exposure may be a factor in health effects.

Occupational exposure limits (OELs) are how much of contaminants or physical agents an average worker may be exposed to at work over a set period before they may suffer harmful health effects. There may be limits for full or partial shift exposures.

The limit at which harmful health effects may occur may be lower for people with:

- Chronic diseases (autoimmune, cancer, asthma)
- Pregnancy
- Advanced age
- Excess weight
- General health problems

People who have any of these risk factors may need to work within limits that are lower than the OEL. In recognition of individual susceptibility differences, some companies adopt limits which are more stringent than those required by law.

Many contaminants and physical agents can be difficult to see/measure. We may need to use special measuring devices to determine their presence and concentration.

How Does Industrial Hygiene Work?

There are five general methods, in descending order of effectiveness, that we can use to apply industrial hygiene and reduce exposures to contaminants and physical agents that can harm health.

- **Eliminate** it by redesigning the process (example: outsource tasks to specialists)
- **Substitute** it with a safer process or product (example: use robots instead of people or choose safer chemicals)
- Provide **engineering controls** at the source (example: use exhaust vents/hoods)
- Reduce exposure through **administration** (example: mandate breaks and assign people in shifts)
- Use **personal protective equipment (PPE)** for added protection (examples: wear gloves when handling bodily fluids and put on hearing protection before entering noisy areas)

The best way to keep people safe and healthy is to use a **combination of controls**. The protection provided by controls can be additive, and if one control fails, other controls may be able to reduce exposure severity or prevent harmful health effects.