# Air quality testing helps workers breathe safe

**Measuring your workplace's air quality is an important part of risk assessment.**





Workplace hazards are not always visible to the naked eye. In the industries IHSA serves, workers are often exposed to airborne contaminants that can pose both short- and long-term health risks if inhaled—including chemical and biological agents, gases such as carbon monoxide, noxious welding fumes, and particles from products like asbestos and lead. Conducting regular air quality testing at your workplace is the key to identifying potential hazards and determining appropriate controls to keep workers healthy and safe.

## Airborne hazard exposure limits

In Ontario, the *Regulation for Control of Exposure to Biological or Chemical Agents* (R.R.O. 1990, Reg. 833) sets strict limits for workplace exposure to a variety of chemical and biological agents.

Employers must proactively control workers' exposure to these hazardous agents, accounting for three key exposure limits:

- **Time-weighted average (TWA) limit:** The maximum airborne concentration of a substance, averaged out over an eight-hour workday or 40-hour work week, to which a worker may be repeatedly exposed.
- **Short-term exposure limit (STEL):** The maximum airborne concentration of a substance that a worker can be exposed to in any 15-minute period.
- **Ceiling limit (C):** The maximum airborne concentration of a subtance to which a worker may be exposed at any time.

Regulation 833 lists exposure limits for a number of hazardous agents, under the Ontario Table. For any other substances, the regulation advises referring to the threshold limit values of the American Conference of Governmental Industrial Hygienists (ACGIH) Table.

"The ACGIH is a great source that establishes safe exposure limits for chemical substances," says Jasmine Kalsi, IHSA's Occupational Hygienist.

## Air quality testing standards and considerations

To figure out if workers are at risk, you need to know what hazards exist at the workplace. These resources can help you identify products that may cause air quality issues:

- Safety data sheets of the substances your company works with.
- Previous workers' compensation claims data.
- The U.S. National Institute for Occupational Safety and Health (NIOSH) *Pocket Guide to Chemical Hazards*.
- IHSA's *Occupational Health Risks* diagnostic toolkits (W120), which offer trade-specific guidance.

It's also useful to talk to the workers who use the substances as part of their jobs—to determine how long and how often they are exposed to airborne hazards.

If there are hazardous substances or other contaminants at your workplace, an air quality assessment should be conducted. Only a qualified professional, such as a Registered Occupational Hygienist or Certified Industrial Hygienist, should carry out the assessment.

"Any designated person conducting the assessment and testing must have a strong technical background and experience conducting air quality assessments," Kalsi says. "This ensures the work is done properly, and that the results are accurate and reliable."

## How IHSA can help to test air quality at your workplace

IHSA can provide air quality testing services to member firms in the construction, aggregates, electrical utilities, and transportation industries. Here's how it works:

1. Our occupational hygienist visits the workplace for a scoping meeting. This typically lasts between one and two hours and includes an initial walkthrough survey to determine the number of air quality samples that will be needed and how they'll be collected.

2. After the scoping meeting, IHSA sends a service proposal outlining costs and deliverables based on the findings of the initial visit. Once the proposal is accepted, the assessment date is set.

3. On assessment day, the hygienist arrives on site and—among other things—equips identified workers with sampling devices to test air quality. Sampling typically takes place for the duration of a shift.

The workplace air quality samples are then collected and delivered to a laboratory for testing. Once the lab results are available, a final report is issued with information including:

- The materials that were sampled during the assessment.
- The testing methods used to analyze the samples.
- Recommendations for control measures to reduce any identified air quality hazards.

The final report gives employers a clear understanding of the air quality at their workplace and provides actionable steps to improve it. Those steps could include control measures such as using mechanical ventilation systems, substituting products for less hazardous alternatives, changing work practices, or providing workers with additional personal protective equipment. Ultimately, the goal is to create a workplace where everyone can breathe a little easier.

## Protecting respiratory health

**LISTEN** to Episode 95 of the *IHSA Safety Podcast* to hear more from Jasmine Kalsi about airborne hazards and workplace air quality testing: **ihsasafetypodcast.ca**

**VISIT** IHSA's occupational health topic page for information on hazardous substances such as asbestos, diesel exhaust, silica, and more: **ihsa.ca/occupational_health**

**DOWNLOAD** our *Occupational Health Risks* diagnostic toolkits (W120) for details on hazardous agents encountered by workers—and the illnesses they can cause: **ihsa.ca/products/w120**