

EXPOSURE MEASUREMENT

CONTROL APPROACHES

Introduction

Exposure measurement requires a survey to assess people's exposure to substances in workplace air, and discover how and why this exposure happens.

Design and Equipment

- » Exposure measurement is not an alternative to controlling exposure.
- » Measurements are best done after controls have been applied.
- » Personal sampling is taking an air sample near the worker's breathing zone to measure the amounts of airborne substances inhaled for a stated task.
- » Other sampling may be needed to assess controls. Exposures vary from day to day. They may be higher on another day when no measurements were taken.
- » If the results for a given task are below one third of the exposure limit, your controls are probably good enough.
- » Exposure measurement is required:
 - when the Controlling Chemical Hazards guideline or web project requires a Specialist assessment (GS Control Approaches 4 - Special), to help in selecting the right controls;
 - where there is a serious risk to health from inhalation of the substance;
 - to check that exposure limits are not exceeded;
 - to check that your exposure controls work well enough, or if you need improvements;
 - to check that new controls work well enough;
 - to help choose the right level of respiratory protection;
 - after process or production changes that mean exposure may have changed;
 - to show any need for health surveillance; or
 - when an Occupational Health and Safety Officer issues you with an 'Compliance Order' requiring monitoring.

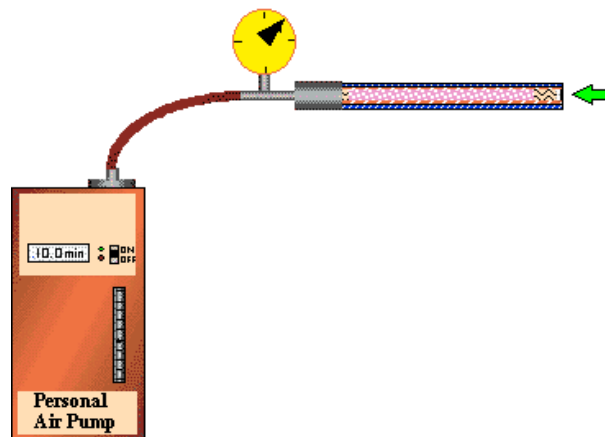


Figure 1: Personal Sampling Pump

What the consultant's report should include:

Facts:

- » background to, and the purpose of the survey;
- » the process measured, the work patterns, and the hazards involved;
- » the control measures in place, and their performance;
- » photographs and diagrams;
- » what measurements were taken (long and short-term), and how;
- » how and where samples were analyzed;
- » exposure limits or exposure benchmarks, and whether these are protective of health;
- » any industry standards of good control practice; and

- » results, related to a plan of the process. This includes how 8-hour time-weighted average concentrations were calculated.

Opinion:

- » identified exposure sources, discussion of results, compliance with standards, the adequacy of controls and an assessment of risk;
- » identification of tasks not measured that are likely to be an exposure source;
- » any work groups that could be exposed but were not measured;
- » other matters of concern, and how to address them;
- » recommendations for improvement (e.g. action plan for controls, training, health surveillance); or
- » recommendations for further surveys to measure the effectiveness of the changes.

What is it likely to cost?

- » Get an estimate. A professional survey will last at least a half-day, sometimes several days, and could cost a few thousand dollars. It depends a lot on the type of chemicals involved, the amount of sampling, and laboratory work.
- » Don't pay for failures of sampling pumps or sample losses.
- » Provide the consultant with past sampling results, to put the current survey into context.
- » In general you will need a fully qualified Occupational Hygienist to evaluate the risks associated with chemical hazards if the Controlling Chemical Hazards guideline or web project identifies control approach 4. The individual you select should be certified by either the Canadian Registration Board of Occupational Hygiene (CRBOH) as a Registered Occupational Hygienist (ROH) or by the American Board of Industrial Hygiene (ABIH) as a Certified Industrial Hygienist (CIH).
- » The CRBOH maintains a list of occupational hygiene consultants that can help you, <http://www.crboh.ca/page.cfm?onumber=175>

TIPS ON SELECTING A CONSULTANT

- Do your research. Know something about the services and/or products you are looking for.
- Be able to clearly identify your needs, requirements and expectations for the consultant.
- Examine the qualifications of the consultant. Ask for relevant certifications, training, previous experience and references. Satisfy yourself that they are qualified and competent to provide the service.
- Keep in mind that enlisting the services of a consultant does not exempt an employer from their responsibility to develop, implement and maintain systems that ensure the health and safety of workers.