

## Industrial Hygiene Services

### WHAT IS INDUSTRIAL HYGIENE?

Industrial Hygiene is the science of evaluating the work place for hazardous exposures which may cause occupational disease. The primary hazards evaluated by Zenith's Industrial Hygienists include:

- Chemical - dusts, mists, vapors and fumes
- Physical - noise, heat/cold and radiation
- Ergonomic - cumulative trauma disorders

### HOW DOES THE INDUSTRIAL HYGIENIST PERFORM AN EVALUATION?

One way the Industrial Hygienist evaluates chemical hazards is by conducting personal exposure monitoring. Employees who work with potentially hazardous chemicals may be asked to wear personal sampling pumps during part or all of their work shift (ranging from 2 to 8 hours). The sampling pump weighs about 3 pounds and should not interfere with normal work activities. The sampling pump is calibrated to pull in a known amount of air over a certain length of time (liters of air per minute). The sampling pump draws air through a plastic tube which runs from the pump to a sampling device clipped to the employee's collar (see figure 1). By placing the sampling device at the employee's collar, a "breathing zone" sample is collected. This sample best represents what the employee is actually breathing and, therefore, the employee's actual exposure.

After collection, the sample is sent to a laboratory for analysis. The laboratory will determine the concentration of the contaminant in the air samples. Results of chemical sampling will be presented in parts per million (ppm - parts of contaminant per million parts of air drawn through the sampling media) or in milligrams per cubic meter (mg/m<sup>3</sup> - milligrams of

Example of personal air sampler for dust.  
(NOTE: Normally the pump and tubing would be mounted behind the worker)



contaminant per cubic meter of air drawn through the sampling media).

Physical hazards, such as noise, can also be evaluated using personal sampling. Employees who work in noisy areas may be asked to wear a noise dosimeter for all

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or a part of their work shift (4 to 8 hours). The noise dosimeter weighs about one pound, and can be worn on a belt, or it is small enough to fit in a shirt pocket. The noise dosimeter has a small microphone attached to it. The microphone is clipped on the employee's collar to best represent the noise exposure to the employee's ear. The noise dosimeter averages the worker's noise exposure over the sampling time period.

In both chemical and physical personal exposure monitoring, the results obtained from the sampling are compared to standards set by OSHA and other standard setting organizations to determine if there is an exposure problem.

Finally, the Industrial Hygienist may also conduct ergonomic assessments. Ergonomic assessments evaluate the work area for properly designed tools, equipment, and work processes. The Industrial Hygienist will observe the employee to identify improper lifting, reaching, awkward body postures or repetitive motions.

### **WILL INDUSTRIAL HYGIENE MONITORING INTERRUPT MY OPERATIONS?**

When industrial hygiene monitoring is to be conducted, operations should be reflective of a normal work day. During monitoring for chemical or physical hazards, the employee is expected to perform normal job functions while wearing the sampling equipment. The sampling equipment may be removed by the Industrial Hygienist during the employee's breaks and lunch period. The sampling media may need to be changed periodically during the sampling period. If this is necessary, the Industrial Hygienist will take about 30 seconds to change the sampling media.

The Industrial Hygienist will observe the employee during the sampling period and take notes on the work being performed. This information is often useful when making recommendations on controls to limit the employee's exposure.

During an ergonomic assessment, the Industrial Hygienist will also observe the employee as he/she performs the normal job functions. In addition, still photographs or videos of the employee and the work area may be taken.

### **WHAT SHOULD I TELL MY EMPLOYEES?**

Employees should be told prior to the industrial hygiene survey that the Industrial Hygienist is not evaluating their work performance, but is evaluating their work environment. Employees should also be given the following information:

- Chemical/physical hazard assessment.
- Personal sampling will be conducted to evaluate their exposure to workplace contaminants.
- The sampling may involve wearing a sampling pump or other sampling device.
- The Industrial Hygienist will stay and observe them while the sampling is taking place.
- Ergonomic assessment.
- The Industrial Hygienist will observe them while they perform their work.
- Photo/videos may be taken of them performing their work.

Employees must be informed of the results of the monitoring. Monitoring results should be discussed even when the results show that the employees are not being exposed over the allowable level. If the results are above the allowable levels, the employee should be told what steps the employer will take to reduce the exposure to an allowable level. Also, the employees must understand why they are required to use personal protective equipment (PPE) and how to use it properly.

If you have any further questions relating to industrial hygiene services, please contact your local Zenith Safety & Health Consultant.