

## **INDUSTRIAL HYGIENE EXPERTISE AT NRL, WASHINGTON, D.C. IS ONLY A LABEL AWAY**

Industrial hygiene is a scientific specialty that is dedicated to the prevention of occupational diseases and injuries through anticipation, recognition, evaluation, and control of exposure to chemical and physical hazards in the workplace.



**Researchers often work with chemicals that may emit airborne contaminants**

One important industrial hygiene method for evaluating workplace hazards is the collection and analysis of air samples taken in a worker's breathing zone during a specific work assignment. Possible airborne contaminants include aerosols, gases, vapors, dusts, and fumes such as welding fumes. Air samples can be used to determine whether the levels of airborne

contaminants measured in the work environment are hazardous to workers' health.

Some of the hazardous substances used in research and development (R&D) laboratories are regulated by the Occupational Safety and Health Administration (OSHA) or by Navy standards. In those cases, an industrial hygienist collects samples of air in the worker's breathing zone during the use of particular hazardous substances to determine, through chemical analyses, the concentration of the hazardous substances that the employee might breathe. There are also other health-hazardous substances, not yet specifically regulated by OSHA, which may cause cancer or birth



**Numerous potentially hazardous chemicals are stored at R&D laboratories that may require analysis by an industrial hygienist**

defects or other adverse health effects. Industrial hygienists also monitor breathing air for those substances.

Monitoring for airborne contaminants at R&D laboratories that the

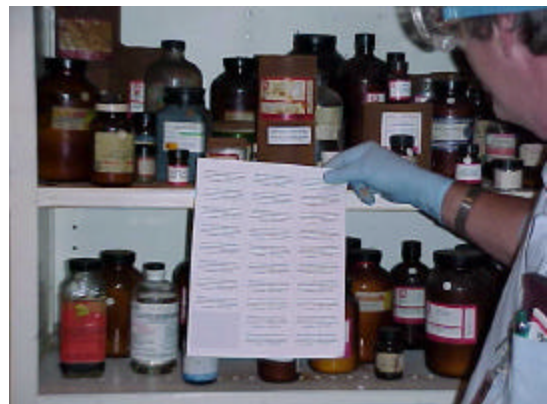


**Timing of laboratory experiments can be unpredictable**

Industrial Hygiene Service Line of the National Naval Medical Center (NNMC) serves has always been a challenge. The precise timing of work tasks in a laboratory is difficult if not impossible to predict, and frequent modifications to schedules are common. The fact is that researchers are often involved in innovative research projects that defy prediction as to what exactly will happen on the next workday, the next

week, or a month later. Because of the ever changing nature of their R&D projects, the researchers at the Naval Research Laboratory (NRL), Washington, D.C. need maximum scheduling flexibility to coordinate the sequence and timing of chemical reactions, the availability of laboratory equipment, and new information that may dictate that a research project follow a different direction. As one laboratory employee put it, "If we are not doing something new every day, we're not doing our jobs."

The unpredictability factor in scheduling makes the industrial hygienist's job even more challenging since it is difficult to predict when and how long there will be an opportunity for monitoring a specific air contaminant. At NRL, an industrial hygienist has frequently arrived on schedule to monitor for a specific air contaminant and been informed that the work task to be evaluated had occurred earlier than had been expected or had been delayed indefinitely due to technical difficulties or a change in priorities.



**Labels preprinted by the NNMC Safety Office alert researchers to the need for analyses by an IH**

Chemistry and biomolecular science R&D labs often stock hundreds of chemicals, many in small quantities, which may be used infrequently. Given the large inventory of chemicals and their intermittent use, the lab staff may lose track of which chemicals do or do not require industrial

hygiene monitoring prior to their use. As an example, the Chemistry Division at NRL has approximately 8,000 different chemicals in its inventory.



**Self-sticking label serves as reminder to call the Industrial Hygiene Office for monitoring**

Mr. Jerry Herold, an industrial hygienist with the Division II NNMC Industrial Hygiene Office came up with a straightforward approach for resolving some of the unpredictability regarding scheduling an industrial hygienist to evaluate chemical hazards in the R&D laboratories. Mr. Herold developed a standardized label to alert the scientists to contact the Division II NNMC Industrial Hygiene Office before using a new chemical or before using a

previously evaluated hazardous chemical in a new procedure. The labels direct the user to contact the Industrial Hygiene Office for a health and safety evaluation of the process before using that chemical or product. The labels were developed in-house, printed by the NNMC Safety Office, and distributed by Mr. Herold.

In the last few months the labeling system has been used successfully to alert NRL researchers to contact the NNMC Industrial Hygiene Office, and air samples have been collected and tested for the presence of the potentially hazardous chemicals, benzene and methylene chloride. The labeling system has also been instrumental in Industrial Hygienists removing chemicals from the NRL that researchers have determined are no longer useful. One example is aerosol spray can primers containing zinc chromate.

The Division II NNMC Industrial Hygiene Office started this venture to obtain reliable air monitoring data for laboratory work tasks in order to protect its scientists and technicians from chemical exposure hazards. On the way to that goal, the Industrial Hygiene Office has added another tool to educate and to protect its people from occupational injuries and illnesses.

Point of Contact: Mr. Jerry Herold, Industrial Hygienist, Division II Office, National Naval Medical Center, Bethesda, MD

Telephone: (202) 404-4467

Email: [herold@safetyhp.nrl.navy.mil](mailto:herold@safetyhp.nrl.navy.mil)