# Section 14
## HAZARD COMMUNICATIONS (HAZCOM)

### 14.1 Working With Chemicals

The OSHA Hazard Communication (HAZCOM) (Right-To-Know) Standard requires all employees be given adequate information and training on the long- and short-term health effects of chemicals they work with. Your company has established a Hazard Communication (HAZCOM) Program to provide this information to you. You can take the steps necessary to safeguard your health by following the procedures established in this program.

A copy of this program – along with a chemical inventory list and corresponding Material Safety Data Sheets (MSDSs) are available for your review and is required to be kept at your local office and at all construction and major modernization jobsites or any other sites where you spend a full shift or eight hours. This program may be made available to others upon request to your Superintendent/Manager.

Chemicals affect the human body differently. The physical makeup of the chemical, the amount of exposure (time and quantity), and the manner in which the chemical is absorbed by the body all play a role in the resulting effects. As long as exposures are not excessive, many potentially dangerous substances are eliminated naturally from the body. It is important to remember that most materials can be removed this way, and their effects are usually not cumulative.

What is important is the dose or amount of a particular chemical that is absorbed over a period of time. Too much of a chemical, either all at once or over time, may be dangerous. Chemicals are absorbed into the body in three ways:

(a) Inhalation – The chemical is taken in with the air we breathe, either as a vapor, dust, gas, fume or mist.
(b) Ingestion – The chemical is ingested either intentionally or accidentally. It can be taken in with the food you eat (or drink) especially if you fail to wash your hands before eating or smoking.
(c) Absorption – It is absorbed through the skin. This occurs for only a limited number of chemicals.

Inhalation is by far the most common way in which chemicals enter the body. How much enters and is subsequently absorbed through the lungs is a function of the chemical. The human respiratory system is extremely effective at removing dust from the air that is breathed. Only the smallest particles reach the lungs. The majority are trapped in the nose and throat, and later eliminated.

The amount of liquid chemicals entering the lung depends on how fast the liquid evaporated into the air. This is a function of the surrounding (ambient) temperature and the vapor pressure of the liquid (the higher the vapor pressure, the faster the evaporation rate). How much is absorbed varies with each chemical.

Industrial Hygienists are engaged in the science of protecting workers from the harmful effects of chemicals. They are trained to recognize, evaluate and control potential exposures to chemicals in the workplace. Today, many chemicals have been studied, and as a result, their effects have been identified. Levels of acceptable exposure for a normal work day have been determined. These are known as threshold limit values (TLV), or permissible exposure limits (PEL).

In general, there are two major types of effects which are of concern when talking about chemical exposure – the short term or acute effects, and the long term or chronic effects. Some chemicals have both, some one or the other.