Hazardous Chemicals – Four Routes of Entry Meeting Kit

The Four Routes of Entry of Hazardous Chemicals (Safety Talk)

Many chemicals used on the job are hazardous to humans depending on how an individual comes into contact with them as well as the amount of the chemical they are exposed to. Employees need to understand the chemicals they are exposed to and the possible routes of entry.

THE FOUR ROUTES OF ENTRY

1. **Inhalation**– Inhalation is the most common route of entry a person comes into contact with a chemical. Once inhaled, chemicals are either exhaled or deposited in the respiratory tract. Upon contact with tissue in the upper respiratory tract or lungs, chemicals may cause health effects ranging from simple irritation to severe tissue destruction. The chemical can also go onto affecting organs that are sensitive to the chemical.
2. **Absorption–** Getting chemicals onto the skin or eyes can result in redness and irritation all the way to severe destruction of tissue or blindness. The eyes are especially sensitive to chemicals. Some chemicals have the ability to pass through the skin and get into the blood stream of a victim. This can lead to systemic problems in the organs.
3. **Ingestion**– Chemicals that inadvertently get into the mouth and are swallowed do not generally harm the gastrointestinal tract itself unless they are irritating or corrosive. Some chemicals can be absorbed through the gastrointestinal track where they enter the bloodstream. Once in the bloodstream they can cause damage to the organs.
4. **Injection–** Though not common, injection of chemicals into

the body can occur. A sharp object can be contaminated with a chemical or substance and penetrate the skin. The chemical is then in the body and can make its way into the bloodstream where it can damage organs or other tissue.

PREVENT HARMFUL HEALTH EFFECTS FROM CHEMICALS

These measures include:

Engineering Controls (Isolating or Removing the Hazard):

- Enclose process
- Provide local exhaust

Administrative Practices

- Time work so fewer workers are exposed
- Work upwind of mixing operations
- Shower after shift
- Change clothes
- No food or smoking in work areas

Personal Protective Equipment

Eye Protection

Depending on the job you are doing and the type of material you are handling, you may need various levels of eye protection including:

- safety glasses
- chemical safety goggles
- a face shield, or
- some combination of these.

Skin Protection

Skin protection includes items such as gloves, aprons, full bodysuits, and boots.

The SDS should tell you the types of materials that provide the best protection against the product you are using.

No single material acts as a barrier to all chemicals.

It is also important to consider the temperature conditions and the need for materials not easily cut or torn.

Respiratory Protection

There are several types of respirators on the market.

Some are effective against some chemicals but may provide little or no protection against others.

Creating Respiratory Protection Guidelines:

- A qualified person must carry out a detailed assessment of your workplace including all chemicals used and their airborne concentrations and forms.
- Complete respiratory protection guidelines generally cannot be given on the SDS.
- If respirators are required at your worksite, a complete respiratory protection program including respirator selection, fit testing, training and maintenance is necessary.

Safety Data Sheet (SDS)

A safety data sheet (SDS) is an important component of occupational health and safety.

It’s intended to provide workers and emergency personnel with procedures for handling or working with a hazardous substance in a safe manner and includes information such as:

- physical data (melting point, boiling point, flash point).
- toxicity
- health effects
- first aid

- reactivity
- storage
- disposal

- protective equipment, and
- spill-handling procedures.

FINAL WORD

If you are not practicing good hygiene you could be bringing chemicals home with you and exposing family members to them. For example, there is lead dust on the floor of a work area you are often in. You walk through the floor all day and then when you go home you do not take off your shoes and you walk around on your carpet. Take preventive measures to clean your clothes and other items that you take home with you.