



The ABCs of Chemical Exposure

When working with hazardous chemicals is part of your job, it is important for you to know the risks you face with each chemical you use. This guide will outline the kinds of injuries that chemicals can cause, types of chemical exposures and their effects, and factors that influence the severity of exposure.

Exposure—How Much, How Often and How Long?

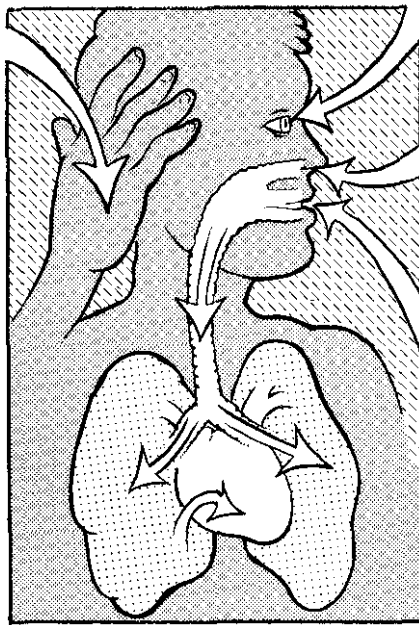
Chemicals greatly vary in their toxicity, but three factors—the amount, the frequency and the duration of exposure—must always be considered. Acutely toxic chemicals can injure after a single exposure, while other chemicals cause harm after repeated exposures. Being aware of which chemicals are toxic only when exposure is repeated or prolonged can help you protect yourself from this dangerous group of substances that injure without obvious or immediate symptoms.

Physical Characteristics Determine Exposure Level

Extremely volatile chemicals evaporate readily and thus contaminate the air you breathe more easily than other chemicals do. If flammable they are an extreme fire or explosion hazard as well. Corrosive or highly reactive chemicals are acutely toxic and will injure skin, respiratory passages or eyes immediately on contact. Consult your MSDS for information on the physical characteristics of chemicals you use.

Routes of Entry

How a chemical gets into your body influences its toxicity. Your skin protects against some chemicals that are toxic only if you inhale them, while others are deadly only if swallowed. Still other chemicals can be handled safely but will injure eyes on contact. Know which routes of



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entry—skin, mouth, lungs, eyes—are dangerous for the chemical you use, and always use protective equipment to prevent those kinds of exposures.

Kinds of Reactions

If you are exposed to a hazardous chemical, you can expect one of two kinds of reactions: local or systemic reactions. Local reactions occur at the place where the exposure occurred—for example, skin, eyes or lungs—and may range from minor irritation to severe tissue damage. Breathing dangerous chemical vapors may injure lungs and respiratory passages, while swallowing such chemicals can damage your mouth, esophagus, stomach and intestines. Although most local reactions are immediate, some, such as allergic rashes, occur only after repeated exposure and may vary from one person to another.

When chemicals enter the blood through the skin, eyes, mouth or, most frequently, the lungs, certain organs (called "target organs") or your entire body can be damaged; this is a systemic reaction. Systemic reactions can be immediate but often are delayed: You don't know they are happening until they have done severe damage.

Do Your Homework

To protect yourself from unexpected injury from a hazardous chemical, refer to the MSDS for that chemical. It will list the signs and symptoms of chemical toxicity for both local and systemic reactions as well as the target organs and primary routes of entry. Always use personal protective equipment and follow safety guidelines appropriate for the chemical. And avoid relying on your memory or tips from co-workers: Review the MSDS whenever you have the slightest doubt about the hazards of any chemical.