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Acids, Bases, Alkali

SAFETY TALKS TOOLKIT

Acids and bases (caustics) can easily damage skin and eyes. How serious the damage is depends on how strong or concentrated the chemical is, how long contact is maintained and what actions you take.

Acids and bases can be liquids, solid granules, powders, vapors or gases. A few commonly used acids include: sulfuric acid, hydrochloric acid, muriatic acid and nitric acid. Some common bases (caustics) are lye (sodium hydroxide) and potash (potassium hydroxide).

Both acids and bases can be corrosive, causing damage to whatever they come in contact with. The more concentrated the chemical the more dangerous it can be. Vinegar is a mild form of acetic acid, and as such it can be swallowed or rubbed into the skin with no damage, but a concentrated solution of acetic acid can cause serious burns.

Different acids react differently when they contact your skin. Sulfuric acid mixes with water to produce heat; when it contacts your skin it reacts with moisture causing burns. Hydrofluoric acid may not even be noticed if it spills on your skin but hours later as the acid is absorbed into the muscle tissue, it can cause deep burns that are very painful. Most acids in a gas or vapor form react with the moisture in your nose and throat causing irritation and damage when you breathe them in. Acetic and nitric acids don't react with water so when these vapors are breathed in, they quickly penetrate into the lungs causing serious damage.

Bases as a class of chemicals feel slippery or like soap. In fact, soap is made from a mixture of a base (lye) and animal fat. Concentrated bases dissolve tissue easily and therefore can cause severe skin damage on contact. Concentrated caustic gases like ammonia vapors can damage the skin, eyes, nose, mouth and lungs. Even dry powder forms of bases can damage you when you breathe them in because they react with the moisture in your skin, eyes and respiratory tract.

Cement and mortar are alkali compounds in their wet or dry form. As dust and powder they can cause damage to skin and eyes when they react with moisture in your body. Concrete and mortar are abrasive and can damage your skin by the sandpaper-like quality they possess.

- Always follow these rules when working with acids and bases:
- Know what chemicals you are working with and how strong (concentrated) they are.
- Use Personnel Protective Equipment as required.
- In case of skin or eye contact, flush with cool water for at least 15 minutes, do not rub the skin or eyes.
- Always add acid to water to prevent splatter.
- Keep acids and bases apart, store separately and clean up spills promptly.
- Check with your supervisor if you need more information.