

Corrosive Safety

Corrosive Material

Corrosive materials are **acids** (PH of less than 7) and **bases** (PH greater than 7). A corrosive substance is one that will damage or destroy other substances on contact by means of a chemical reaction, often causing damage within seconds and creating long lasting health implications. This includes skin, metals, and cloth.

Effects

Acids and bases damage tissue in different ways. Acids tend to produce immediate pain at the site of contact. Bases may not produce the same immediate warning of damage.

- Delay in pain may lead to longer exposure and more severe injuries
- React with skin oils and triglycerides to form a soap on skin
- Harder to remove from skin

Non-liquid acid and bases include dusts, vapors and gases which can cause both internal and external injuries. Inhalation is the greatest concern and can damage lung tissue and cause pulmonary edema.

Contact with eyes can cause permanent damage such as blindness.

Toxic corrosives can harm organ systems apart from the skin. Significant damage may occur before symptoms appear.

Corrosives can damage containers, equipment, and building components. Reactions can create flammable gas that can burn or explode. Refer to SDSs to select the proper container and storage cabinet.

Uses

Industrial uses for corrosive materials include:

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| • Cleaning industrial components | • Producing batteries |
| • Rust and corrosion removal | • Laboratory operations |
| • Wood pulping | • Chemical production |
| • Glass etching | • Cleaners for food prep stations |
| • Water treatment | |

Common household corrosive materials include:

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| • Bleach | • Oven cleaner |
| • Ammonia | • Batteries |
| • Vinegar | • Concrete mix |
| • Drain cleaner | • Pool chemicals |

Recognize Corrosive Materials

Ways to identify the presence of corrosives include:

- Training
- Safety procedures
- Container and pipe labels
- Signs
- Pictograms
- Chemical inventory lists

Labels tell us about chemical dangers and precautions to be followed and should be maintained and accurate. Look on the labels for the product ID (what the product is), signal word ("danger" is more severe than "warning"), pictograms and hazard statements, precautionary information, and PPE codes. Check the SDS for more information.

Proper Use of Corrosive Material

Good housekeeping tips:

- Properly dispose of unlabeled or contaminated chemicals.
- Remove empty containers from work areas.
- Ensure waste containers are properly marked.

After working with corrosives, wash hands after removing protective gloves, especially before eating, drinking or smoking and before using the restroom. When working around hazardous chemical areas do not eat, drink, smoke, or chew gum.

Exposure Situations

Exposure situations might include:

- Splashes when pouring from larger containers into smaller ones
 - Corrosion-resistant drum pumps can be used for transferring liquids
 - Hand pumps are also available for dispensing corrosive liquids from most sizes and types of containers.
- Do not transfer liquids by pressurizing their shipping containers with air. Ordinary drums and barrels may be damaged by the pressure.
- Always wear required protective equipment

Reduce Exposure by:

- Handle corrosives so that dusts, mists, vapors, or fumes do not get into the air.
- Work in a fume hood to protect yourself and others from breathing corrosive vapors, mists, or dusts, and position the glass sash between you and the chemical as a shield.
- Work deliberately, minimize pour height, work upwind so airborne materials will not move in your direction, and as Always wear required protective equipment
- Dry forms become more hazardous when hydrated. Immediately address potential exposures. Do not blow off with compressed air
- Transport bottles of corrosive liquids in buckets or some other form of protective secondary containment.
 - Dropped bottles can shatter and cause splashing of corrosives. Coated shatter resistant bottles are an option available from some distributors.
- Avoid skin contact with contaminated containers or surfaces
- Clean spills immediately to prevent exposures later
- Pour or transfer liquid over containment trays

- Always handle containers with care
- Replace and discard Damaged containers to reduce the possibility of leaks

Reduce Splatters and Mists

- Combining materials could produce high heat
- Boiling or froth can occur
- Possible eruption out of the container
- Always add corrosives to water and use cold water to mix

Storage

Minimize the amount of chemicals on hand and remove any unwanted or expired materials. Practice first-in, first-out management of stored chemicals. Proper storage information can usually be obtained from the SDS, label, or other chemical reference material.

Regularly inspect storage containers and areas for corrosion damage, leaking containers, incompatible materials, and poor housekeeping. Report and correct all deficiencies as soon as possible. Wear appropriate PPE during inspections.

Storage Considerations include:

- Temperature - Cool areas, out of direct sunlight and away from heat sources.
- Ventilation - Adequate to prevent buildup of corrosive vapors, etc.
- Segregation and identification - A physical barrier and/or distance is effective for proper segregation.

Exposure Emergencies

Before using any corrosive chemical, know where the closest eyewash station and safety showers are located, and how to use them.

Workers who use corrosives and chemicals should know the immediate emergency procedures to take when an exposure takes place.

The first aid for accidental skin or eye injuries usually involves flooding the contaminated area with large amounts of water. However, the specific first aid recommendations can vary from one corrosive material to another. For instance, after flushing, hydrofluoric acid exposures may need to be followed with an antidote such as calcium gluconate gel.

Large Spill Emergency Actions

1. Evacuate the area at once if you are not trained to handle a large spill or if it is clearly beyond your control.
2. Alert nearby workers.
3. Report the situation so specially trained people, equipped with the proper tools and protective equipment, can handle the emergency.

Obtain qualified medical care if you have been exposed to harmful chemicals. Use emergency showers and eyewash stations if needed. The SDS and container label for a particular

corrosive should give specific first aid instructions in case of exposure by skin or eye contact, inhalation, or swallowing.

Skin Exposures

If a corrosive contacts the skin, flush the area with large amounts of water immediately for at least 15 minutes. Remove contaminated clothes while showering. The shower should have little or no pressure to avoid further damaging injured tissue. Victims may be in great pain and require aid. Seek professional medical care as soon as possible.

Eye Exposures

For eye exposures, use an eyewash station to flush the eyes for a minimum of 15 minutes. The eye lids must be held open for flushing to be effective. Portable eye wash bottles aren't a replacement for plumbed units. Seek medical attention as soon as possible following flushing.

Inhalation Exposure

For inhalation exposures, seek medical attention immediately. The full effects of the exposure may not be evident for several hours. Thus, medical observation/assistance during this time is important.

For all exposure situations, the affected worker should seek medical attention immediately to ensure long-term damage does not take place.