

HAZARDOUS MATERIALS



Hazardous materials can be silent killers. Almost every household and workplace has varying amounts of chemicals that, if spilled or combined, will cause great harm and even death. It is important that you have a basic knowledge of how to recognize these chemicals, where they may be found, and what to do, or not do, about hazardous material spills.

Ways that hazardous materials can enter the body:

- Inhalation; through breathing, most rapid way
- Absorption; through skin or eyes
- Ingestion; swallowing
- Injection; penetrating skin

The key to dealing with hazardous material spills is to remember **S.I.N.** (Safety, Isolation, Notification).

Safety:

- **Always assume that spilled chemicals are extremely toxic**
 - **Do not approach; stay at a safe distance**
 - **Mixtures of chemicals can be very dangerous**
 - bleach mixed with ammonia creates poisonous gas(es)
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Isolation:

- Close off room and/or building
- Mark outside of building

Notification:

- Notify Incident Commander
 - & local emergency personal
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Hazardous Materials are an ever-present danger:

- In the home or workplace
 - On roadways
 - In industrial or commercial areas
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IN THE HOME OR WORKPLACE



INVENTORY:

- Make a list of hazardous materials
- Read the labels on all products you purchase
- Segregate and store or dispose of properly
- Know what steps to take if chemicals are spilled
- Secure and segregate all containers at work

TYPICAL PLACES HAZARDOUS MATERIALS ARE FOUND IN THE HOME:

Kitchen

- oven cleaners, drain cleaners, ammonia, bleach

Laundry

- bleach, spot removers, cleaners

Garage

- gasoline, solvents, pesticides, paints, paint removers, thinners
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ASBESTOS:

Asbestos is one of the potential hazards that you may encounter in a damaged building. Asbestos is a human carcinogen, which can be found in a number of different building materials throughout city and campus buildings. The hazard presented by asbestos varies considerably based upon the nature of the materials and the likelihood of causing an airborne release of asbestos fibers.

If left un-disturbed, a release is unlikely.

ON ROADWAYS

Hazardous materials transported on roadways must carry a Department of Transportation (DOT) warning label on the package. Vehicles transporting quantities of hazardous materials must have DOT placards affixed to all sides of the vehicle. Bulk shipments, such as in gasoline tanker trucks, will have a four digit numeric code instead of the hazard class in the center of the placard. This number can be referenced in the DOTs "Emergency Response Guide Book" to determine the identity and the emergency handling for the chemical involved.

DOT HAZARDOUS MATERIALS WARNING LABELS: Color Coding of Labels and Placards:



Orange:	Explosive
Red:	Flammable Gas and Liquid
White:	Poison
Black/White:	Corrosive
Yellow:	Oxidizer
Green:	Non-flammable gas
Yellow/White:	Radio Active

Hazardous Materials by Class Numbers

- Class 1: Explosive
- Class 2: Gasses (Compressed, liquefied or dissolved under pressure)
- Class 3: Flammable Liquids
- Class 4: Flammable Solids or Substances
- Class 5: Oxidizers
- Class 6: Poisonous or Infectious Substances
- Class 7: Radioactive Substances
- Class 8: Corrosives
- Class 9: Miscellaneous Dangerous Substances

The class number is the number located on the bottom corner of the label or placard.

IN INDUSTRIAL AND COMMERCIAL FIXED SITES

Most buildings that contain hazardous materials are identified by the National Fire Protection Association 704 Diamond system, which is usually located at the building entrance or in the storage area.

The 704 Diamond is divided into four quadrants. Each quadrant of the diamond has a special meaning and is color-coded. The top quadrant is coded red for fire hazard, the right quadrant is coded yellow for reactivity, the left quadrant is coded blue for health hazards, and the bottom quadrant is white and contains information about special hazards of the particular chemical. Each colored quadrant is also numbered for the degree of hazard from zero to four, four being the greatest hazard.

RED ... FIRE HAZARD

4. materials that burn readily
3. materials that can ignite at room temperature
2. materials that ignite if moderately heated
1. materials that ignite after considerable preheating
0. will not burn

YELLOW ... REACTIVITY

4. may detonate
3. shock and heat may detonate
2. violent chemical change
1. unstable if heated
0. stable

BLUE ... HEALTH INFORMATION

- 4. deadly
 - 3. extreme hazard
 - 2. hazardous
 - 1. slightly hazardous
 - 0. normal material
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SPECIAL INFORMATION

W: water may cause reaction

COR: corrosive

OXY: oxidizer

ACID: acid

COMMON HAZARDOUS MATERIAL LOCATIONS:

Industrial or manufacturing plants

- Shopping centers, supermarkets
 - Dry cleaners
 - Hardware stores
 - Auto repair shops
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SIGNS OF HAZARDOUS MATERIAL SPILLS:

- Overturned containers with DOT label especially on roadways
- Pungent or noxious odor you should never intentionally get close enough to smell it
- Bubbling liquid
- Vapor anything that is letting off a vapor is having a reaction and should be avoided

If you see one or more of these signs of a hazardous materials spill on roadway or at a fixed facility, take the following actions:

- Get uphill, and upwind, and a safe distance away from the spill
 - Evacuate the surrounding areas if possible, but do not put your self in danger of exposure to the spill
 - Notify authorities as quickly as possible
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"Hazardous Materials" is a very comprehensive subject. The important concept to understand is recognition. DOT placards are placed on vehicles, DOT labels are placed on packages, and the 704 Diamonds are placed on buildings or storage areas containing hazardous materials. Being able to recognize warning signs and being able to recognize that there is a hazardous condition present may save your life and the lives of others.

Remember, "Hazardous Materials" in the home and workplace should be segregated and stored in well-marked, unbreakable containers. They should also be stored in a low cabinet with an earthquake-proof latch. Dispose of any hazardous materials that are no longer needed.

Questions???
