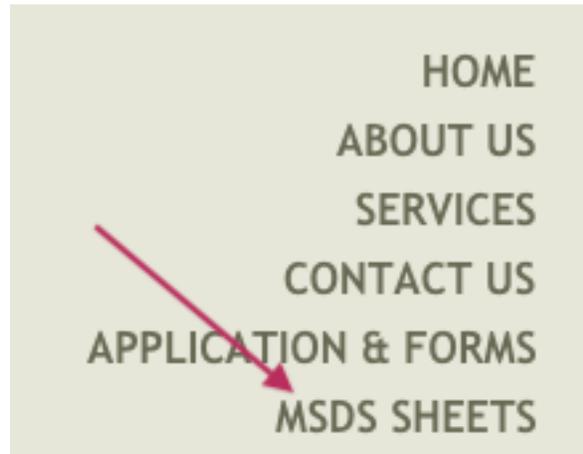




## CHEMICAL TRAINING

First and foremost, know where the MSDS sheets are (**M**aterial **S**afety **D**ata **S**heets) for all the chemicals we use; ours are on the [chayceusa.com](http://chayceusa.com) website—from the home page, upper right hand corner, you can select MSDS Sheets.

Most of these documents are in English and Spanish. You'll need to know which specific chemical was being used at the time of the incident.



### Routes of Entry

The main routes of entry for chemicals into the human body are:

- Inhalation into the lungs
- Absorption through the skin or cuts in the skin
- Ingestion via mouth

Different chemicals (or combinations of them) have different affects:

- **Corrosive substances** cause destructive burns on tissue; corrosive effects can also occur in the respiratory tract if inhaled.
- **Oxidizers** are chemicals which decompose easily under certain conditions and create oxygen molecules—because they create oxygen this means they can cause a fire to burn violently.
- **Flammable substances** are those which could easily catch fire (combust). The degree of hazard associated with a flammable liquid depends on its flash point, flammability limit, and ignition temperature.
- **Explosive chemicals**: rapid chemical change within these substances very quickly creates gases which result in a sudden increase in pressure . . . think shaking a can of soda.
- **Toxic substances** can, at a minimum, create an injury, or at maximum have lethal effects upon contact with cells due to their molecular properties. These effects depend upon the extent of exposure and the inherent toxicity of a chemical. Toxic effects may occur after a single

exposure (acute) or long term, repeated exposure (chronic). A good example is lead. Lead is a neurotoxin which blocks certain receptors in the brain. This is huge public health hazard, and the reason why we have unleaded gasoline and testing for lead in paint today. Asbestos is another example (although it isn't a chemical per se).

- **Water reactive** chemicals react violently when they come into contact with moisture or water.

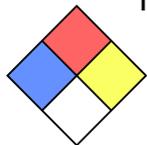
## **EMERGENCY MEASURES**

- Quickly assess the type of incident and, where safely possible, render aid such as eye wash, etc.
- Immediately alert Security of the incident
- Also let your supervisor or manager know of the incident.

## **Know How To Deal With Our Chemicals**

The MSDS sheets explain in lots of detail what each chemical is comprised of and its potential effects upon the human body. They will often list suggested types of PPE (**P**ersonal **P**rotective **E**quipment) to most effectively safeguard against injury.

Each sheet is also required to list specific actions to take in the event of an accident.



The quickest way to gauge a particular chemical's hazard rating is by looking at—and being familiar with—the NFPA Panel, created by the National Fire Protection Association. As the name suggests, this is generally more help to a firefighter, but it can also give you an idea of a chemical's hazard rating.

There are four areas on the panel:

**Red** - Fire (combustion) hazard

**Blue** - Health hazard

**Yellow** - Reactivity hazard

White - Specific hazard (such as 'don't mix with water')

The numbers in the red, blue, and yellow areas range from 0 to 4, 0 indicating no hazard and 4 indicating a severe hazard.

	0	No hazard
	1	Slightly hazardous
	2	Hazardous
	3	Extremely hazardous
	4	Deadly

	0	Will not burn — concrete, for instance
	1	Above 200° F (93 C). — such as paper and wood
	2	Below 200° F
	3	Below 100°. (38 C)
	4	Below 73° F. (23 C)

	0	Stable
	1	Unstable if heated
	2	Violent chemical
	3	Shock or heat may detonate
	4	May detonate

	OXY	Chemical is an oxidizer
	ACID	Chemical is acidic
	ALK	Chemical is an alkali (base)
	COR	Chemical is corrosive
	<b>W</b>	Use no water