

# Quick Guide to Chemical Compatibility

Use these four (4) steps to segregate your chemicals for the safest possible storage. As you gather information about the characteristics of your chemicals, fill in four sections of the chart.

Once all information has been entered compare the information. The chemicals that have the same answers **in all 4 categories** can be stored in the same secondary containment.

## 1) Identify the Chemical Hazard

Segregate chemicals into like type hazards. Be aware that some chemicals have multiple hazards and therefore require further segregation.

Physical: Corrosive, Flammable, Oxidizer, Reactives

Health: Toxic

## 2) Determine the pH Value

Continue to segregate the chemical groups by identifying if they are acidic (pH < 4), neutral (pH 4 - 10), or basic (pH > 10).

## 3) Inorganic or Organic

Identify whether a chemical is an inorganic or organic compound. Organic compounds will have carbon (C) in the chemical formula. Note that even though a "C" may appear in the formula it might be referencing a different chemical element, such as chlorine (Cl), cadmium (Cd), or calcium (Ca).

This step is extremely important for the segregation and storage of corrosives and oxidizing chemicals.

## 4) Solid or Liquid

Solid and liquid chemicals should be stored separately to minimize the involvement of chemicals in the event of a liquid spill.

Below is a sample chart illustrating the four step evaluation process for chemical compatibility. Note that only Isopropanol and Ethyl Alcohol are compatible.

Chemical Name	1) Hazard	2) pH Value	3) Inorganic / Organic	4) Solid / Liquid
Ammonium Hydroxide	Corrosive	Base	Inorganic	Liquid
Sulfuric Acid	Corrosive	Acid	Inorganic	Liquid
Isopropanol	Flammable	Neutral	Organic	Liquid
Acetic Acid	Corrosive	Acid	Organic	Liquid
Nitric Acid	Corrosive, Oxidizer	Acid	Inorganic	Liquid
Ethyl Alcohol	Flammable	Neutral	Organic	Liquid
Formalin	Toxic	Neutral	Organic	Liquid

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## Definitions

**Combustible:** Solids that are difficult to ignite and burn relatively slowly, and liquids having a flash point between 100\_F (37.7\_C) and 200\_F (93.3\_C).

**Corrosive:** Any solid, liquid, or gaseous substance that burns, irritates, or destructively attacks organic tissue. Chemicals with a pH value less than 4.0 (acidic) or greater than 10.0 (basic) are considered to be corrosive substances.

**Flammable:** Any solid, liquid, vapor, or gas material that will ignite easily and burn rapidly. This is a chemical that when in liquid form will have a flash point of < 100\_F (37.7\_C).

**Flash Point:** The temperature at which a liquid or volatile solid gives off vapors that will ignite when exposed to an ignition source.

**Oxidizer:** A compound that supplies its own oxygen and heat (ignition source) when in contact with organic compounds. These are chemicals that can react vigorously and explode.

**Toxic:** A substance that can cause damage to living tissue, impairment of the central nervous system, severe illness, or death when ingested, injected, inhaled, or absorbed through skin.

