



Reactive chemicals are extremely unstable, and react vigorously under conditions of shock, increased temperature or pressure, or exposure to water or air.

1. Oxidizers

- Yield oxygen or promote combustion
- Avoid contact with combustible materials
- Ex: hydrogen peroxide, nitrate compounds, potassium dichromate, halogens

2. Pyrophoric Substances

- Store in dark, cool, dry place away from flammables
- Prevent contact with air by maintaining air tight seal on containers
- Often water-reactive as well (ensure Class D Fire Extinguisher is nearby)
- Corrosion and shatter resistant secondary containers to prevent leaking/breaking
- Ex: metal hydrides, organometallic reagents, alkali earth elements, finely divided metals, gases

3. Water Reactive

- Store in cool, dry place away from flammables
- Keep away from water; do not store under sinks, near water baths, or under sprinkler heads
- Store in desiccator to maintain low humidity atmosphere
- Ensure Class D fire Extinguisher is nearby
- Ex: sodium, potassium, and lithium metal



4. Explosives

- Chemicals that may become explosive through contamination, or those that degrade over time and become explosive
- Record opening and discard dates on container
- Keep separated from all ignition sources (ex: open flames, hot surfaces, direct sunlight, sparks)
- Consider designating a special area to store and use explosive chemicals (explosive magazine)
- Ex: picric acid (dry), tri-nitro compounds, heavy metal azides, chlorates, acetylene, perchloric acid

5. Peroxide Formers

- Explosive or shock-sensitive upon reacting with oxygen
- Store in airtight containers in cool, dark place with other compatible chemicals (never store in freezers)
- Ensure compounds are labeled with receiving, opening, and disposal dates
- Compounds should be tested regularly and all containers checked for signs of peroxide formation (crystals, discoloration)
- Ex: most ethers, tetrahydrofuran, cyclopentanes, chloroprene, butadiene, vinyl chloride



Safety Precautions

- Only laboratory personnel trained to use reactive chemicals should handle them.
- Review the Material Safety Data Sheet (MSDS) before handling the material.
- Always use appropriate personal protective equipment and follow safe laboratory practices.