DEPARTMENT OF
ENVIRONMENTAL HEALTH AND SAFETY

EHS Fact Sheet
Reactive Chemicals

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

Oxidizers
- Yield oxygen or promote combustion.
- Avoid contact with combustible materials.
- Examples include hydrogen peroxide, nitrate compounds, potassium dichromate and halogens.

Pyrophoric Substances
- Store in a dark, cool, dry place away from flammables.
- Prevent contact with the air by maintaining an air-tight seal on containers.
- Often water-reactive as well, so ensure a class D fire extinguisher is nearby.
- Use corrosion and shatter resistant secondary containers to prevent leaking or breaking.
- Examples include metal hydrides, organometallic reagents, alkali earth elements, finely divided metals and gases.

Water Reactive Chemicals
- Store in a cool, dry place away from flammables.
- Keep away from water; do not store under sinks, near water baths or under sprinkler heads.
- Store in a desiccator to maintain a low humidity atmosphere
- Ensure a class D fire extinguisher is nearby
- Examples include sodium, potassium, and lithium metal



Explosives
- Chemicals can become explosive through contamination, or can degrade over time and become explosive.
- Record opening and discard dates on the container.
- Keep separated from all ignition sources like open flames, hot surfaces, direct sunlight and sparks.
- Consider designating a special area to store and use explosive chemicals.
- Examples include dry picric acid, tri-nitro compounds, heavy metal azides, chlorates, acetylene, and perchloric acid.

Peroxide Formers
- Explosive or shock-sensitive upon reacting with oxygen.
- Store in airtight containers in a 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).
- Examples include most ethers, tetrahydrofuran, cyclopentanes, chloroprene, butadiene and vinyl chloride

Safety Precautions
- Only laboratory personnel trained to use reactive chemicals should handle them.
- Review the chemical's safety data sheet before handling the material.
- Always use appropriate personal protective equipment and follow safe laboratory practices.


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