Compatible Storage Classes

Class	Definition	Examples	Hazards	Storage
Flammables	Gases and solvents with a flash point less than 140°F and solids that burn readily	methanol, acetone, acetaldehyde	Ignites easily, burns rapidly	Store in flammable storage cabinet , away from ignition sources and oxidizers
Organic Acids	pH 1-7	bromic acid, nitric acid, phenol	Tissue damage, violent reaction with strong bases, Fire	Segregate from mineral acids, oxidizing acids and bases.
Inorganic Acids	pH 1-7	hydrochloric; sulfuric, boric	Tissue Damage, violent reaction with strong bases	Segregate from organic acids, oxidizing acids and bases
Caustics	Bases (pH 7 – 14)	sodium hydroxide; potassium hydroxide	Tissue damage, violent reactions with strong acids	Segregate from mineral acids, organic acids, and oxidizing acids
Explosive/ Shock Sensitive	Thermodynamically unstable material	picric acid, 2,4-dinitrophenol, organic azides	Explosion caused by shock or chemical reaction	Follow manufacturer's recommendation. Discard before expiration date. Store minimum quantities
Water Reactive	React violently when exposed to water to produce heat or toxic gases	sodium metal, acid anhydrides, metal anhydrides	Explosion, Fire, Toxic atmosphere	Store under inert atmosphere or oil per manufacturers instructions.
Peroxide Former	Form unstable peroxides when exposed to air	diethyl ether, sodium amide	Explosion resulting from formation of concentrated peroxide crystals	Store under nitrogen. Dispose before expiration date. If there is no marked expiration date label with receipt date and maintain for no more than 1 year. Mark the date opened and store for a maximum of 6 months after opening. Store minimum quantities.
Pyrophoric	Ignites spontaneously in air	phosphorus metal, lithium	Fire	Store under inert atmosphere per manufacturers instructions.
Oxidizer	Agents that reacts with reducible material to initiate or promote combustion	nitric acid, bromine,	Fire, explosion	Store away from organics and flammables. Do not store directly on wooden shelves or paper. Store chlorine separately from acids.
Poison	Chemicals that cause damage to target organs (liver, lungs, reproductive system, etc.) if inhaled, ingested, injected or absorbed through the skin.	chloroform chromic acid	Acute or chronic toxic effects that may be local, systemic or both.	Store in a secure, sealed container below shoulder level. Use only in designated areas. Store away from incompatibles.
Carcinogen	Chemicals that can cause cancer in humans or human models	formaldehyde, benzene	Carcinogenesis	Store in a secure, sealed container below shoulder level. Use only in designated areas with approved controls. Store away from incompatibles.
Cryogen	Liquefied or solidified gases at low temperatures	liquid nitrogen, dry ice	Tissue damage (frost bite), oxygen displacement, Tank rupture	Store in approved containers. Store in well ventilated areas. (Do not store dry ice in cold rooms.) Design transfer lines that liquids can not be trapped in a non-vented part of the system
Compressed Gas	Purified gas in a pressurized container	nitrogen, oxygen, carbon dioxide, carbon monoxide	Tank rupture, Fire, toxic atmosphere, oxygen displacement	Store upright, secure to prevent falling, check connections regularly to avoid leaking. Store oxygen away from flammable gases.
Controlled Substances	Substances specifically controlled by federal law	narcotics	Theft	Store in a secure, locked location. Maintain a current inventory.

DOT Hazard Class	Definition	Examples	Hazards	Storage Guidance
Class 1 Explosive/Shock Sensitive	Thermodynamically unstable material.	picric acid, 2,4-dinitro-phenol, organic azides	Explosion caused by shock or chemical reaction.	Follow manufacturer's recommendation. Discard before expiration date. Store minimum quantities.
Class 2 Gases Flammable Gas	Gas with a flash point less than 140° F.	carbon monoxide, hydrogen, oxygen, propane	Ignites easily, burns rapidly.	Store away from ignition sources and oxidizers. Secure with a double chain to prevent falling. Store oxygen away from flammable gases. Check connections regularly to avoid leaking.
Non-Flammable Gas (including compressed gas)	Non-flammable, purified gas in a pressurized tank.	nitrogen, carbon dioxide	Tank rupture, fire, toxic atmosphere, oxygen displacement	Store upright, secure with a double chain to prevent falling. Check connections regularly to avoid leaking.
Class 3 Flammable Liquid	Liquid with a flash point less 140° F.	methanol, acetone, acetaldehyde	Ignites easily, burns rapidly.	Store in flammable storage cabinet, away from ignition sources and oxidizers.
Class 4 Flammable Solid	Solid that burns readily.	sodium	Ignites easily, burns rapidly.	Store in flammable storage cabinet, away from ignition source and oxidizers.
Class 5.1 Oxidizer	Agents that react with reducible material to initiate or promote combustion.	nitric acid, bromine	Fire or explosion.	Store away from organics and flammables. Do not store directly on wooden shelves or paper. Store chlorine separately from acids.
Class 5.2 Organic Peroxide	Any organic compound that forms unstable peroxides when exposed to air.	diethyl ether	Explosion resulting from formation of concentrated peroxide crystals.	Dispose before expiration date. If there is no marked expiration date, label with receipt date and maintain for no more than 1 year or 6 months after opening.
Class 6 Poison	Chemicals that cause damage to organs (liver, lungs, etc.) if inhaled, ingested, or absorbed. **Toxic** chemicals have LD50 of 50-500 mg/kg. **Highly toxic** chemicals have LD50 of <50 mg/kg.	chloroform, chromic acid, phenol, acetonitrile	Acute or toxic effects that may be local, systemic, or both.	Store in a secure, sealed container below shoulder level. Use only in designated areas. Store away from incompatibles.
Class 8: Corrosive Organic Acids	Compound with pH of 1-7, containing carbon.	phenol, acetic acid	Tissue damage, violent reaction with strong bases.	Segregate from mineral acids, oxidizing acids and bases.
Inorganic Acids	Compound with pH of 1-7, not containing carbon.	hydrochloric acid, sulfuric acid, boric acid	Tissue damage, violent reaction with strong bases.	Segregate from organic acids, oxidizing acids and bases.
Caustics	Compound with pH of 7-14.	sodium hydroxide, potassium hydroxide	Tissue damage, violent reactions with strong acids.	Segregate from mineral acids, organic acids, and oxidizing acids.
Class 9 and Miscellaneous Water Reactive	Reacts violently when exposed to water producing heat or toxic gases.	sodium metal, acid anhydrides, metal anhydrides	Explosion, fire, toxic atmosphere	Store away from water, including sprinkler heads, sinks and drains, per manufacturers instructions.
Pyrophoric	Ignites spontaneously in air.	Phosphorus, lithium	Fire	Store under inert atmosphere per manufacturers instructions.
Carcinogen	Chemicals that cause cancer in humans or animals models.	formaldehyde, benzene	Carcinogenesis	Store in a secure, sealed container below shoulder level. Use in only designated areas with approved controls. Store away from incompatibles.
Sensitizer	Substances that can cause an allergic reaction of the skin or respiratory system.	glutaraldehyde, isocyanates	Allergic reaction.	Store in secure container taking into account other hazards associated with the substance.
Controlled Substances	Substances specifically controlled by federal law.	narcotics	Theft	Store in a secure, locked location. Maintain a current inventory.