

UNIVERSITY OF KANSAS - LAWRENCE CAMPUS

PART I - General Laboratory Safety Plan

Section 8) Appendices

Appendix 8.2.3) Chemical Storage and Compatibility Guidelines

Example of Compatible Storage Groups

STORAGE GROUPS

Store chemicals in separate secondary containment and cabinets

A	Compatible Organic Bases
B	Compatible Pyrophoric & Water Reactive Materials
C	Compatible Inorganic Bases
D	Compatible Organic Acids
E	Compatible Oxidizers including Peroxides
F	including Oxidizers or Combustible
G	Not Intrinsicly Reactive or Flammable or Combustible
J*	Poison Compressed Gases
K*	Compatible Explosive or other highly Unstable Material
L	Combustible, including solvents
X*	Incompatible with ALL other storage groups

*Storage Groups J, K and X: Contact EH&S @ 4-4089
For specific storage - consult manufacturer's SDS

If space does not allow Storage Groups to be kept in separate cabinets the following scheme can be used with extra care taken to provide stable, uncrowded, and carefully monitored conditions.

Figure. Compatible storage group classification system. Use this system in conjunction with specific storage conditions taken from the manufacturer's label and SDS.

Chemical Storage Configuration and Chemical Classes

By chemical storage configuration, chemical storage falls into one of the following configurations:

- Vented - (**V**)
- Refrigerated flammable - (**E**-requires an explosion –proof refrigerator)
- Flammable - (**F**)
- Refrigerated - (**R**)
- Shelf - (**S**)

By chemical class, chemicals fall into one of the following classes:

- Reactive metal or organometallic - (**M**)
- Oxidizer - (**O**)
- Significantly acidic - (**A**)
- Significantly basic - (**B**)
- Neutral - (**N**)

Chemicals then receive a two –letters storage –configuration/chemical class code, starting with the storage configuration, using the highest configuration that applies, followed by the highest chemical class that applies, for example, **VO** (vented oxidizer), **FM** (flammable reactive metal or organometallic), **RB** (refrigerated basic), or **SN** (shelf neutral). Chemicals are stored and segregated according to the two- letter storage code.

There are special, two-letter hazard storage classes that supersede all of the two-letter permutations of chemical storage configuration and chemical class, and these are:

- Explosive - (**EX**)
- Controlled substance - (**CS**, requires lock and key)
- Cylinder - (**CY**)
- Frozen - (**FR**)

In theory, then, there are 30 unique storage-configuration/chemical class codes

Storage Code Guidelines

- In general, use the hazard codes on the bottles label and /or Aldrich catalog.
- In general, store chemicals in the refrigerator only as directed on the label.
- Most inorganic compounds are classified **SN**, **SA** or **SB**. Only reactive metals (should state reacts with water on bottle label) are classified as **M** (such as metal hydrides).
- Inorganic compounds such as potassium iodide and sodium sulfate are **SN**. Most catalysts such as palladium acetate, cobalt (II) and rhodium octanoate are also **SN**.
- Inorganic compounds labeled as corrosive can be **SA** or **SB**, such as potassium hydroxide(**SB**), potassium fluoride(**SA**) and phosphorous pentoxide (**SA**).
- Glovebox compounds are given the storage location of glovebox, but still labeled according to their hazard class(i.e. **SN**, **SB**, **SA**, **FM** ,etc.).
- Organic acids (such as cinnamic acid and benzoic acid) are **SN** unless they are classified as corrosives.
- Amino acids (including protected methyl esters, Boc-protected and HCl salts) are stored as **RN** (refrigerator) compounds.
- Amino hydrochloride salts (such as hydroxyl amine hydrochloride and methylamine hydrochloride) are stored as **SN**.

S-shelf

N-neutral

A-acid

B-base

M-metal

R-refrigerator