# Storage Compatibility of Dangerous Goods in laboratories and Chemical Stores

A common practice is to store all chemical materials alphabetically. However, in order to prevent unwanted reactions from occurring in a storage area, chemicals should be stored in compatible groups. The following tables give possible combinations of dangerous goods classes which may be stored together. Note that **class 1** may not be stored with anything else. Sometimes further advice can be obtained from the MSDS or the supplier.

For operations at the Department of Chemistry, UOW, no dangerous goods may be stored together that have a classification of I or R.

**Reference** : Appendix G, Australian/New Zealand Standard AS/NZS 3833 The Storage and Handling of Mixed Classes of Dangerous Goods in Packages and Intermediate Bulk Containers.

| Class | 2 | 3 | 4.1 | 4.2 | 4.3 | 5.1 | 6.1 | 8 |
|---|---|---|---|---|---|---|---|---|
| 2 | C | I | I | R | I | R | C | C |
| 3 | I | C | I | R | I | R | C | I |
| 4.1 | I | I | C | R | R | R | C | I |
| 4.2 | R | R | R | C | R | R | I | R |
| 4.3 | I | I | R | R | C | R | C | R |
| 5.1 | R | R | R | R | R | R† | R | R |
| 6.1 | C | C | C | I | C | R | C | R |
| 8 | C | I | I | R | R | R | R | C‡ |

Key:

**C = *are likely to be compatible with each other***

**I = *are likely to be incompatible with each other***

**R = *are likely to react dangerously with each other***

† All dangerous goods of this Class may be regarded as reacting dangerously with other dangerous goods of the same class but with different UN Numbers.

‡ Liquids may be regarded as incompatible with other liquids or solids of the same class but with different UN Numbers.

The table below indicates more specific chemicals may be safely stored together. Within a group, chemicals may be stored alphabetically.

| Chemical Group | Reactivity | Do Not Store With |
|---|---|---|
| | Group # | Group # |
| INORGANIC ACIDS | 1 | 2-8,10,11,12,13,15-18,20,21 |
| ORGANIC ACIDS | 2 | 1,3,4,7,13,15-18 |
| CAUSTICS | 3 | 1,2,6-8,12-17,19,21 |
| AMINES AND ALKANOLAMINES | 4 | 1,2,5,7,8,12-17,21 |
| HALOGENATED COMPOUNDS | 5 | 1,3,4,11,13,16 |
| ALCOHOLS, GLYCOLS, GLYCOL Ethers | 6 | 1,7,13,15,19,21 |
| ALDEHYDES | 7 | 1-4,6,8,14-16,18,19,21 |
| KETONES | 8 | 1,3,4,7,18,19 |
| PETROLEUM OILS,SATURATED HYDROCARBONS | 9 | 19 |
| AROMATIC HYDROCARBONS | 10 | 1,19 |
| OLEFINS | 11 | 1,5,19 |
| ESTERS | 12 | 1,3,4,18,19 |
| MONOMERS, POLYMERIZABLE Esters | 13 | 1-6,14,15,18,19,20,21 |
| PHENOLS | 14 | 3,4,7,13,15,18,19 |
| ALKYLENE OXIDES | 15 | 1-4,6,7,13,14,16-18,21 |
| CYANOHYDRINS | 16 | 1-5,7,15,18,21 |
| NITRILES | 17 | 1-4,15,21 |
| AMMONIA | 18 | 1,2,7,8,12-16,19,21 |
| HALOGENS | 19 | 3,6-14,18,20 |
| ETHERS | 20 | 1,13,19 |
| ACID ANHYDRIDES | 21 | 1,3,4,6,7,13,15-18 |

This table details some sub-classes within the nine dangerous goods classes.

Reference http://info.anu.edu.au/hr/OHS/_Procedure_Attachments/Storage_Compatibility_Table.pdf

| | Dangerous Goods Class | Explosives | Flammable gases | Non-toxic, non flammable gases | Toxic gases | Flammable liquids | Flammable solids | Spontaneously combustible | Dangerous when wet | Oxidizing agent | Organic peroxide | Toxic | Radioactive | Corrosive | Miscellaneous DG | Foodstuffs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Explosives | 1 | | | | | | | | | | | | | | | |
| Flammable gases | 2.1 | | | | | | | | | | | | | | | |
| Non-toxic, non flammable gases | 2.2 | | | | | | | | | | | | | | | |
| Toxic gases | 2.3 | | | | | | | | | | | | | | | |
| Flammable liquids | 3 | | | | | | | | | | | | | | | |
| Flammable solid | 4.1 | | | | | | | | | | | | | | | |
| Spontaneously combustible | 4.2 | | | | | | | | | | | | | | | |
| Dangerous when wet | 4.3 | | | | | | | | | | | | | | | |
| Oxidizing agent | 5.1 | | | | | | | | | | | | | | | |
| Organic peroxide | 5.2 | | | | | | | | | | | | | | | |
| Toxic | 6 | | | | | | | | | | | | | | | |
| Radioactive material | 7 | | | | | | | | | | | | | | | |
| Corrosive | 8 | | | | | | | | | | | | | 1 | | |
| Miscellaneous DG | 9 | | | | | | | | | | | | | | | |

***Key***

| | |
|---|---|
| | Incompatible – Do not store together |
| | Caution and conditions apply. Avoid storing together |
| | Not to be stored together un( |
| | Compatible when stored correctly |

***Note***

1 Segregate acids and bases/alkalis