



# ASSIST

AUSTRALIAN SCHOOL SCIENCE  
INFORMATION SUPPORT FOR  
TEACHERS AND TECHNICIANS

Published on ASSIST (<https://assist.asta.edu.au>)

[Home](#) > [Chemical Storage Cabinets](#)

---

## Chemical Storage Cabinets

Posted by Anonymous on Thu, 2014-07-31 09:50

Chemical Storage Cabinets: Can you please provide information on chemical storage cabinets suitable for storage of corrosive substances, including concentrated nitric, sulfuric and hydrochloric acids.

### Voting:



Average: 5 (1 vote)

### Year Level:

7  
8  
9  
10

Senior Secondary

### Laboratory Technicians:

Laboratory Technicians

---

Showing 1-1 of 1 Responses

## Answer by labsupport on question Answer by ritasteffe on question Chemical Storage Cabinets

Submitted by ritasteffe on 23 August 2014

Science ASSIST will, in the next 12 months, be developing specific guidelines for the storage

of chemicals used in school science areas. The information that follows is some interim information for consideration and to address this question. (Since this answer was given, Science ASSIST has released its 'Chemical Management Handbook' which includes a lot of safety information for chemical in use in Australian Schools—July 2017.)

Generally, the amounts of corrosive chemicals stored in schools are below the quantities required to be stored in a chemical storage cabinet. In addition, there are a range of incompatibilities within this Dangerous Goods class, which need to be considered in their storage.

### **Quantities requiring a cabinet:**

Approved chemical storage cabinets are required for corrosive substances where the storage quantities exceed the levels listed in AS 2243.10 Safety in Laboratories Part 10: Storage of Chemicals.

### **Quantities of hazardous chemicals permitted to be stored in a laboratory other than in a chemical storage cabinet [1]**

**Type of substance or class of dangerous goods** – Class 8.

**Maximum per 50m<sup>2</sup> kg or L** – 20 for liquids, 50 for solids.

**Maximum pack size kg or L** – 20.

**Conditions for storage** – labelled standard laboratory cupboard or in small amounts throughout the laboratory.

**Alternative storage options** – AS 3780 or AS/NZS 3833. (Excerpt from Table 1, p19, converted to text)

### **Corrosives cabinets:**

Cabinets for the storage of corrosive substances need to comply with AS 3780-2008: The Storage and Handling of Corrosive Substances. These cabinets are designed to protect the contents from damage, provide segregation between incompatible chemicals, contain small spills and protect in the event of a fire. These cabinets are required to have a self-closing door with at least 2 latch points, a 150mm deep liquid tight sump capable of containing 25% of storage capacity, and contain shelves which allow free movement of air. They should be constructed of corrosion resistant materials or have a corrosion resistant coating.

There are generally two types of corrosive storage cabinets. Those made out of metal, usually powder coated steel, and those manufactured from high-density Polyethylene plastic. Metal cabinets are more suited to slightly corrosive substances, however they do corrode over time. The Polyethylene cabinets provide superior resistance for the storage of highly corrosive substances which are aggressive to metal e.g. sulphuric, hydrochloric and nitric acids. Cabinets come in different sizes and capacities with adjustable shelves and deep sumps. Some are lockable and others have sealed dual compartments to store incompatible substances safely within the one cabinet. There are numerous companies that manufacture

both types, please see our school suppliers list.

### **Minor storage of corrosives:**

Schools generally store minor quantities of corrosive chemicals, which are below the amounts listed in the table above. Minor quantities do not require an approved corrosives cabinet and may be stored in a suitably ventilated chemical store or chemically resistant cupboard taking into account segregation from other dangerous goods classes and subclasses, packing groups, compatibilities, spill control, ventilation and emergency procedures. Concentrated corrosives can be stored segregated in a 'bunded area' in the chemical store, corrosive storage cabinet or in containment trays on the bottom shelf in a chemical store. Liquids should be stored close to the floor and below solids.

A bunded area is an enclosed space used to retain spilt chemicals. A bund is often referred to as secondary containment and, if built in a chemical store, is generally made from brick or concrete. If the chemical store does not have built-in secondary containment, then the use of specialised chemical cabinets, or containment trays made from materials compatible with the chemical being stored may be used. The trays themselves act as a bund. The bunding should be of sufficient volume to contain all of the corrosive liquid if the bottle breaks.

It is important to consider any incompatibilities between dangerous goods when considering storage. For example, with corrosive substances this means checking the incompatibilities as listed on the Safety Data Sheet (SDS). i.e. segregating acids from incompatible chemicals such as alkalis, hypochlorites, cyanides and Dangerous Goods Class 4.3 Dangerous When Wet: substances, which in contact with water, emit a flammable gas. In addition, ideally all concentrated acids should also be segregated from each other, however, this is very difficult to achieve in a school chemical store. Concentrated acids should be kept separate in containment trays, which act as bunds. Nitric acid is best stored on its own in a secondary container near floor level and should be kept away from other acids, and in particular acetic acid. When a subsidiary risk is listed for a chemical, the storage requirements of both the relevant dangerous goods class and the subsidiary risk must be followed.

Science ASSIST recommends that schools assess their individual situation with regard to quantities and types of corrosive substances they have and the configuration and capacity of their chemical store to determine if it is necessary to invest in a corrosive storage cabinet.

The Victorian Department of Education and Early Childhood Development has produced a very good Guidance Sheet with general information on Chemical Storage which is based upon AS 2243.10: See:

<http://www.education.vic.gov.au/Documents/school/principals/management/g...> (Link updated October 2017)

[1] This extract from AS/NZ2243.10:2005 Safety in laboratories Storage of Chemicals is reproduced with permission from SAI Global Ltd under Licence 1407-c117