

Maximum Allowable Quantities (MAQ): An Explanation

When working with chemicals on campus the sky is never the limit. There are definite restrictions to how much of a chemical you can use and store in any one location. This amount is referred to as the Maximum Allowable Quantity (MAQ). The concept of MAQs is something that all users of hazardous chemicals should be aware of. Most everyone knows that excess flammable liquids must be stored in flammable liquid storage cabinets and laboratory staff understand that you cannot keep more than 10 gallons of a flammable liquid outside of these cabinets. These are just a couple examples of MAQs - and there are many more. In addition to flammable liquids, MAQs are set for flammable solids and gases, for toxic and highly toxic substances, and for oxidizers, pyrophoric materials, and unstable compounds.

The MAQ for your lab can be a very difficult target to understand because it is not regulated by one governmental entity. The primary MAQ requirements are based on the International Fire Code (IFC) since the City of Madison has adopted this code. But the National Fire Protection Association (NFPA) also sets limits – typically on container types and sizes for flammable liquids. Additionally, OSHA sets limits, though these tend to parallel those of the IFC and NFPA, and EPA has chemical waste storage requirements. And let's not forget about the Department of Homeland Security – if we go above the limits for any of their specifically listed chemicals then the University must notify the agency. Your shop or laboratory may be compliant with one of the agencies MAQ requirements but not compliant with another.

Another reason that MAQ is a difficult standard to meet is that the MAQ changes, based on which floor in a building you are located, if the building has a sprinkler system, if the chemicals are stored in a flammable storage cabinet/gas cabinet, and how many control areas your building has. Technically, the IFC MAQs are based on control areas and not rooms or laboratories. Control areas are architecturally designed zones defined by structural fire protection barriers. These zones can include multiple laboratories and spaces.

The [Campus Chemical Hygiene Plan and Compliance Guide](#) is a good place to get initial information on the storage and use limits of chemicals. Appendix C in particular provides the specific limits. While determining your MAQs is not necessarily easy, there are some simple steps you can take to prevent going over the MAQ in your laboratory.

1. Limit your inventory of all chemicals to the minimum quantities necessary to perform your present experiments. Since most chemicals are normally delivered very quickly so there is no need to maintain a large stock or to order in bulk. While ordering larger quantities may seem like an initial cost savings this is counteracted by the fact that many chemicals are only partially used and there is a disposal cost to the University for the unused portion.



2. Dispose of all chemicals properly that are no longer being used (Contact chemical safety for pick up). Keeping chemicals for an extended period of time on the off-chance you may use the chemical presents its own risks. Read the related article in this issue of *The Chemical Safety Mechanism* on the hazards of chemical hoarding.



3. Store chemicals in proper storage cabinets (such as gas cabinets and flammable storage cabinets). For some chemicals, this will increase the quantities you are allowed to have. In some instances it is a requirement. Highly toxic gases, for example, must be kept in a gas cabinet.



4. Many buildings have special storage rooms specifically designed to handle large quantities of flammable liquids or gas cylinders. If your building has one of these rooms store as much as you can there. The designs of these rooms allow for safer storage and also usually do not count against the MAQ for the area.
5. When using large amounts of chemicals for any process, contact Chemical Safety for an MAQ building review.
6. Regularly review MAQ codes as they do change over time, and what you had been doing yesterday may be more strictly regulated today. Updates to the code requirements will be reflected in revisions to the *Campus Chemical Hygiene Plan and Compliance Guide*.

If you have any further questions, please contact Chemical Safety at 5-5000 or email us at chemsafety@fpm.wisc.edu.

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For More Information Contact:

Environment, Health and Safety Department
30 East Campus Mall, Madison, WI 53715-1227
Phone (608) 265-5000 · **Fax** (608) 262-6767;
The Chemical Safety Office