

Safe Handling of Alcohol in the Laboratory

Safety home

Each year, accidents involving methanol and other alcohols happen in K–12 schools. and Students have been burned and in some cases scarred for life as a result of such accidents. After the tragic burning of two students in an Ohio school science class in 2006, a news journalist asked the following question of safety consultants, "Should alcohol be banned from K–12 schools?" The consultants replied that students must learn how to handle hazardous chemicals as they will certainly encounter such chemicals in their daily lives.

Alcohol is one of many chemicals that requires special handling in classrooms. It is our job as science teachers to teach students how to minimize risks associated with hazardous chemicals such as methanol. Teachers, before doing a laboratory or demonstration, "What would a reasonable and prudent person do?"

Procedure for Safe Handling of Alcohol

1. Always practice a laboratory or demonstration before using in the classroom.
2. Wear indirectly vented chemical splash goggles, chemical resistant aprons or lab coats and chemical resistant gloves. Methanol and other alcohols are toxic as well as flammable. Avoid inhalation and skin absorption.
3. Handle alcohols in a chemical fume hood or in a well ventilated (6–10 room exchanges per hour) laboratory. (NFPA 45)
4. Know the location of the A-B-C fire extinguisher, fire blanket, eye wash and shower. These safety items should be in a location where they can be accessed within 10 seconds. Teachers should receive training in the use of all of these items.
5. Know where spill cleanup materials are located in the event of a spill.
6. Do not work alone in the laboratory.
7. Ensure that all ignition sources are removed from the area near the alcohol.
8. **The primary reagent alcohol container should be kept in the chemical storeroom.**
9. Only the minimum quantity of alcohol needed for the experiment should be available to students.
10. Remember the vapors of methanol and other alcohols are flammable and denser than air.
11. Know the chemical and physical properties of all chemicals that are used in the laboratory or demonstrations. Refer to the Material Safety Data Sheets (MSDSs) and share the relevant information with students.
12. Conventional alcohol lamps are unsafe and should not be used by students!
13. When using any flammable in a demonstration, be sure there is a shield between the teacher and the students. The shield only protects students; the teacher is behind the shield - giving a "false sense of security."
14. Keep students away from the demonstration table.
15. Tie back hair, tuck inside a collar/shirt and do not wear loose clothing (e.g., baggy sleeves, etc.)
16. Desk cameras are available today so microchemistry demonstrations are easy to see all over the classroom / laboratory.