



## Chemical Laboratory House Keeping: Safety and Practices

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### Abstract

*A clean lab is safe lab. Good laboratory practice and laboratory housekeeping makes the laboratory quality assurance and quality control. It helps for laboratory safety and management for the reliable and accurate results. Laboratory housekeeping is the fundamental to ensure safe and healthy workplace to work for the staff, teachers and researchers.*

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**Key words:** Laboratory, chemical, safety, housekeeping, work environment and health hazard.

### Introduction

Good housekeeping ensures a clean, safe and pleasant work environment. Poor housekeeping leads to accidents, fire and unsafe and hazardous exposure results even death of the person. Lack of good housekeeping also reduces work efficiency. For a safe and healthy workplace, it is imperative that good knowledge of housekeeping practices is employed. Maintaining high standards of housekeeping conveys a sense of professionalism to those who visit or work in our laboratories (OCS, n. d.; Sarri, Catherine, Eugenia, Runyan, 1991).

### Housekeeping: Work Environment

Appropriate hazard warning sign should be posted where necessary. There should be adequate ventilation and lighting in the work area, laboratory floor and bench areas should be free of clutter. Corridors should be free of tripping hazards, and fire exits are not blocked (OCS, n. d.; Sarri, Catherine, Eugenia, Runyan, 1991; Vogel, 2014). Laboratory floor should be clean and dry. All spills should be dealt immediately to prevent slips and trips hazards, and risk of contamination. Bench tops should be clean, organized and free and clear of debris, trash, scrap, spills or other materials which can pose a health hazard or cause an accident. Store away or remove all unused and unwanted items from the floor, under the benches, on bench tops and in corners. Have a designated room for storage. Place containers and equipment away from the edge of benches to avoid them from being knocked over. Keep shelves above the work bench orderly: heavy item on the lower shelves, lighter on the upper shelves, do not overload the shelves as falling items may injure laboratory workers and ruin experiments (Vogel, 2014; Raghunandan, 2015).

Sturdy ladders should be available to reach items stored above shoulder level. Chairs should be covered with an easily cleaned non-fabric material. Soap and paper towels near hand-wash basins

should be regularly replenished. As lab coats are not permitted outside the lab, they should be hung up on hooks on a clean wall in the laboratory. Personal belongings and clothes are best kept in lockers outside the lab and not left where they can be contaminated or cause obstruction. Eating, drinking, smoking, gum chewing, applying cosmetics, and taking medicine in laboratories is strictly prohibited (Vogel, 2014; SOP,2015;OCS, n. d.).

Avoid using extension cords, equipment, do not overload electrical circuits; do not create electrical hazards in wet and damp areas; frayed cords must be promptly replaced and loose cords properly coiled up. Pay attention to electrical safety (OCS, n. d.; Raghunandan, 2015; SOP, 2015). Work areas and equipment should be left in a safe condition after use. They should be wiped down with appropriate disinfectant at the end of each procedure or immediately following a spill. Working concentrations of the appropriate decontamination agents e.g. bleach (10 %- changed daily), and ethanol (70%), should be available at all times. Designated bins for biohazard waste and sharps should be conveniently located. Waste should be disposed of safely and promptly (OSHA, 1970).

### **Chemicals**

All chemicals should properly and adequately labeled and stored in designated cabinets. Bulk chemicals should be stored in their designated cabinets or storerooms and not on the bench top or lab floor. This will free up bench space and also minimize exposure if a spill does occur. Hazardous and combustible materials should be kept to the minimum. All containers must be capped and sealed, except when being used. This is to reduce the possibility of a spill and reduce any release of fumes into the lab. Flammable and combustible liquids must be stored in designated cabinets marked “FLAMMABLE” and must not be stored near hot plates (OSHA, 1970; Ahmad, 2003). All compressed gas cylinders must be securely strapped to prevent them from falling over. Safely dispose of all unused or old chemicals according to recommended guidelines and maintain a good up to date chemical inventory for ease of tracking. Do not use fume hoods for storage of chemicals and other items (OCS, n. d.; Sarri, Catherine, Eugenia, Runyan, 1991).

### **Emergency Equipment**

Telephone, wash sinks, first aid kit, fire extinguisher, fire alarm, eye wash station/emergency shower, spill kits. This emergency equipment should keep where view and accessible. This equipment must be properly maintained and regularly serviced (OCS, n. d.; Sarri, Catherine, Eugenia, Runyan, 1991; Vogel, 2014; Raghunandan, 2015; OSHA, 1970).

### **Conclusion**

In all procedure of laboratory management the maximum housekeeping is paramount. Good housekeeping involves cleanliness, tidiness and all things in their correct place at the start and finish of each day. Proper labeling is essential. Pay attention to the labeling of bottles, jars and other containers which are used for chemical and biological materials. Unlabeled chemical are very dangerous and avoided at all cost (OCS, n. d.; OSHA, 1970).

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