

Lab Coat Management Program

Lab Safety Initiative

Developed by the Department of Environmental Health & Safety
Endorsed by the Institutional Chemical Safety Committee June 20, 2013



ABSTRACT

Lab coats are a key element of personal protective equipment in laboratories, however we have identified significant barriers to appropriate lab coat use and care. A campus-wide lab coat management program, including laundering services, as recommended by the Institutional Chemical Safety Committee and approved by the Provost, will be instituted as a cost effective solution to increase compliance and reduce risks. A pilot program in Polymer Science and Engineering, and Chemistry departments was successful and forms the basis for this program. Such a program was recently implemented at UMass Lowell.

EXECUTIVE SUMMARY

Due to the lack of a formal lab coat management program, including requisite laundering facilities licensed to handle contaminated materials, the campus is at risk whereby either lab coats are not being used or not maintained in a hygienic condition. A lab coat management program would reduce risk and improve compliance. A pilot program has shown that such a program is well received by the research community. The implementation of the program campus-wide will occur by department during fall 2014. Once enrolled, each Department will be billed each week by Cintas, the selected vendor. Each Department can then choose how to handle the costs, by covering the costs themselves or recharging the costs to the PI's. A lab coat management program would help improve compliance with the use of lab coats, and would demonstrate a strong commitment by the University toward a culture of safety and best practices.

IDENTIFICATION OF NEED

A key element of any health and safety program is the use of appropriate personal protective equipment, which in laboratories typically involves the use of lab coats, safety glasses and gloves. A lab coat is a physical covering meant to provide a shield against hazardous chemical, biological, and radiological substances, and physical insults while performing procedures in the laboratory. The critical need for consistent use of lab coats was clearly demonstrated by the unfortunate incident at UCLA where a lab worker, who was not wearing a lab coat, was fatally burned while working with pyrophoric material. After the fatality, UCLA made a concerted effort to require the use of personal protective equipment in the lab, especially lab coats.

Barriers to the proper and consistent use of lab coats

- Become dirty over time
 - Lab coats are laundered infrequently (perhaps only once per year) leading to a build-up of plain old dirt and grime
 - The most common and abundant contaminant on lab coats is human skin scales, which can also be associated with human body odor.

- Use of lab coats often leads to staining from chemicals which look dirty and unattractive
- Insufficient numbers of lab coats available
 - Leads to the need to share lab coats between lab personnel which is unhygienic
- Inappropriate sizes available
 - Ill-fitting lab coats feel uncomfortable and can be hazardous with long sleeves trailing through materials or catching on corners
- Inadequately maintained lab coats
 - Rips and missing buttons are unsightly
- Lab coats lack a sense of style
 - Particularly younger student workers find the style unappealing
- Lack of a culture of safety in the lab
 - Lack of role models such as the PI wearing a lab coat
- Lack of institutional commitment toward safety practices
 - Lack of enforcement

For all of these reasons, it is an ongoing challenge to remind lab workers to wear their lab coat when working in labs. In particular, the lack of cleanliness of lab coats is a significant deterrent to regular use.

Additionally, a lab coat not only protects the skin from exposure to hazardous materials, it protects clothing from becoming contaminated and keeps hazardous materials from exiting the lab with the individual.

Even while exercising great care, lab coats become contaminated over time with potentially hazardous materials. These lab coats must then be handled carefully so as not to expose individuals. A great challenge exists in how to handle lab coats appropriately at the time of laundering. A survey conducted by email at UMass found that if lab coats were laundered at all, they were either taken home or to a public Laundromat. Neither of these scenarios is appropriate for materials contaminated with hazardous chemicals or biologicals.

As a result of the fatal incident, UCLA entered into an agreement with Cal OSHA regarding health and safety practices in laboratories. The agreement stipulates that: *“Each department or research unit shall be responsible for providing professional laundry services as needed to maintain the hygiene of laboratory coats. They may not be cleaned by staff members at private residences or public laundry facilities. Any clothing that becomes contaminated with hazardous materials must be decontaminated before it leaves the laboratory.”* This has become a standard for best practices at universities across the nation.

SOLUTION

UMass has engaged the services of Cintas to provide and launder lab coats. The benefits of having an outside contractor like Cintas are:

- weekly professional laundering
- weekly inspection and free repairs of the lab coats
- free lab coat wear replacement (but not for damage eg extreme staining, large tears, or purposeful damage)
- weekly service visit
- quick turnaround time when new coats are needed
- logistics of collection and distribution will be handled by the company

PILOT PROGRAM

In June 2011, the campus launched a four-month pilot Lab Coat Management Program with Cintas, a leading uniform company, who provided the lab coats, maintained an inventory for researchers, and provided weekly cleaning services. Initial efforts were directed principally at the Chemistry and Polymer Science Departments. The program provided freshly laundered lab coats on a weekly basis to students, faculty and staff. One of the initial challenges of the program was finding an appropriate location to house the lab coats. Space was found on the fifteenth floor where the entire Chemistry Department in the Lederle Building could house their clean and soiled lab coats. Separate space was found for the Polymer Science Department on the first floor of Conte to house their lab coat program. Individuals were freely able to visit the lab coat storage and exchange area to deposit soiled lab coats and to obtain a freshly laundered

coat. A regular weekly pickup and exchange occurred on Tuesday of each week. Therefore 2 lab coats per person are needed to be maintained in inventory (one being worn and one being laundered).

During the pilot phase, the program was evaluated for the quality of its product and service, the consistency of delivery and pickup, as well as end user participation. After the four months, each department carried the program forward at their own expense. Many students and faculty are grateful for having this program and many other departments would like to be part of it. Because the program was successful it was recommended that it be expanded across campus. The vendor selected is Cintas, and an enhancement to the program is that lab coats will be personalized with name patches to identify a researcher's assigned coats.

COSTS

The cost of the service provided by Cintas covers the cost of the lab coat, application of name patches, professional laundering, free repairs, free replacements (from normal wear & tear) and delivery. The fees are charged per lab coat per week regardless of the number of lab coats actually laundered. Badly stained, damaged, lost or unreturned lab coats are charged a replacement cost fee.

We conducted a survey of the academic departments to obtain an estimate of the number of individuals (faculty, staff, graduate, and undergraduate students) working in research labs. That number is approximately 1591. For researchers not using pyrophoric chemicals or >10.5 gallons of flammables, a regular polyester/cotton blend in white would provide adequate protection and would be charged at \$0.20/coat/week. Total costs per person are: $\$0.20 \text{ /coat/week} \times 2 \text{ lab coats/person} \times 52 \text{ weeks/yr} = \$20.80\text{/person/yr} + 2 \text{ name patches} \times \1.50 (waived during 2014 initial enrollment) = **\$23.80/person/yr** with a replacement cost fee of \$11.00 each.

For comparison, the cost of a similar quality lab coat through VWR is approximately \$ 25.00 without the benefit of personalization or regular laundering.

As an example, the cost for a department with 12 PI's and each PI having 4 additional individuals working in their lab would be $(60 \times \$23.80) =$ **\$1,428/year**

The total cost per year for all departments not using pyrophoric chemicals or large quantities of flammables would be: $\$23.80/\text{yr} \times 1151 \text{ people} =$ $\$27,393.80/\text{year}$

As was instituted at UCLA it is recommend that groups using pyrophoric chemicals or large quantities of flammables, such as in the Chemistry and Polymer Science and Engineering departments, receive flame resistant (FR) lab coats, which provide a higher level of protection at the slightly higher cost of $\$0.69/\text{coat}/\text{week}$. These coats are provided in blue to make them easily identifiable as a lab coat with superior protection. It was estimated that there are approximately 440 individuals in these departments that would need this type of lab coat. Therefore the total cost per year would be:

$\$0.69/\text{coat}/\text{week} \times 2 \text{ coats}/\text{person} \times 52 \text{ weeks}/\text{yr} = \$71.76/\text{person}/\text{year}$
+ 2 name patches $\times \$1.50$ (waived during 2014 initial enrollment)
= **$\$74.76/\text{person}/\text{year}$** with a replacement cost of $\$39.00$ each.

The total for 440 people in FR coats = $\$32,894.40/\text{yr}$. Therefore, the approximate cost to expand the program to the entire campus is approximately: $\$27,393.80 + \$32,894.40 =$ **$\$60,288.20/\text{year}$**

Note: This does not include the number of individuals in teaching labs for which many departments have found the use of disposable lab coats to be a suitable approach.

ADMINISTRATION OF THE PROGRAM

Each department will appoint an administrator that will initially provide the names of all people requiring lab coats. Departments can decide whether they want undergraduates to have individual name patches or patches with the department name. During the initial roll-out of the program, fitting events will be held so that individuals can determine the appropriate size of coat. Departments will be charged for the coats per person per week and

bills can be paid using a Procard. Departments may decide to re-allocate the costs of the lab coats to individual PI's. After the initial roll out of the program, new individuals can be enrolled by the departmental administrator and fitted for a lab coat upon attendance at EH&S's Lab Safety Training. After application of name patches, lab coats will be automatically delivered to a designated building pick up/drop off location. Departments would have to track the students and employees who leave the laboratory, department or university in order to retrieve and return the lab coats and remove the individuals from the departmental charge. Returned coats have patches removed, are laundered, and are recycled back into the program for the next researcher.

A member of the EH&S staff will act as liaison and facilitate the program.

CONCLUSIONS

This joint lab coat program between EH&S and academic departments is designed to provide the University's research community with freshly laundered lab coats available at all times. The goal is to ensure that our laboratory personnel stay safe, both inside the lab and when they leave for home. We want it known that UMass is committed to providing a safe work environment for all members of the University community.

Changing the culture of safety will take time and we are trying to make sure faculty, students and staff understand that lab coats are an essential part their Personal Protective Equipment. This program is cost effective, reduces the barriers to proper use and care, will increase compliance and lower the risk of serious injury. For all of the right reasons, it is the right thing to do.

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