



# The Laboratory Safety Institute

An International Center for Health, Safety, and the Environment

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## How do you manage the ordering of hazardous materials?

The Laboratory Safety Institute asked this question to various listservs in June 2022. Below are the answers we received, archived here for your reference. Personally identifying information has been redacted where possible for privacy.

We don't manage ordering per se, but perhaps this is helpful to you: EHS manages the Chemical Transfer Station (CTS) where we ask folks to send their chemical orders to. At the CTS, we barcode chemicals for our inventory system then repackage them and deliver the same day as arrival. We have been doing this for over 20 years now and have been thru all the ins and outs. It works really well and the biggest challenge is staffing it.

We provide these Chemical Ordering Instructions to our people:  
<https://www.unh.edu/research/chemical-ordering-instructions-0>

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Our research and teaching chemical purchases must be done through our University Chemical Stores (UCS). See <https://www.mtu.edu/chemstores/> for details on their operation.

While I think we are unique in using UCS for all ordering, there are other Universities, usually smaller ones, that require all hazardous material purchases to be authorized by someone from EHS or similar authority.

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I am the Lab Manager for Chemistry & Biology in the Dept of Nat Sci at my PUI. We also have a separate EHS dept that does occasional inspections and consulting, all reporting, and arranges hazardous waste pickups.

All purchases for anything that goes into the labs come through me. They can either set up a cart in SciQuest and send that cart to me with a note on delivery conditions and location and a separate email with SDSs for any new materials OR they can request non-SciQuest items for purchase through a Google form that I set up that also collects an SDS if they order any chemical or kits containing chemicals.

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Here, this whole process is navigated through the Chemical Hygiene Officer (me). EH&S works very closely with me, but I am not officially in their department.

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They are notified about high hazard chemicals by agreement with purchasing. Includes peroxides and shock sensitive chemicals. They manage the ordering of controlled substances/select agents.

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1. We have a list of chemicals which they are not permitted to purchase, because they require medical surveillance and there are other less hazardous substitutes.
2. I worked in government, and there were great pressures to buy at the lowest per unit cost, even when we did not need and could never use certain chemicals either in volume or quantity. It was very hard to stop purchasing from substituting in particular single bottle purchase for a case at a lower per unit cost.
3. We spent a lot of time educating number crunchers about storage issues, monitoring, waste and destruction costs of these unnecessary purchases. In particular, the inventory, monitoring and associated personnel costs that took our forensic chemists off the benches inspecting, monitoring and arranging for disposal of these hazardous chemicals.
4. Lastly, we as an accredited laboratory, and since each individual laboratory had to track the individual lot numbers, we often had to purchase small bottled volumes, so that each laboratory would have its own certified supply. If a reagent was made from a larger lot, even that reagent lot and its constituent chemical lots had to be tracked throughout the larger laboratory system.

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Just a quick note that we have a decentralized chemical acquisition. For the Engineering Program, when department folks receive purchase requests for non-routine chemicals and unusual materials, they send me the info and I conduct a "chemical risk assessment," and provide them with recommendations, safety concerns, storage & handling requirements, and facilitate development of Standard Operating Procedures (SOP).

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The arrangement that we worked out with EH&S for our chemical purchases is:

1. We place the order in our purchasing software.
2. For our department, all chemical orders have to go through our stockroom manager (for our teaching labs) or me (research/instrumentation technician) for our research labs.
3. We download a copy of the SDS. We file two copies, one hard copy that is kept in our stockroom and one electronic copy that is filed in our department's eVelocity folder.

4. Once the order is placed, we send a copy of the SDS to both the PI who placed the order and our hazardous materials technician.

Chemicals are all received in the main office, and the PI who ordered them picks them up from there. Individual chemical management is the responsibility of each PI. We recommend that:

1. They date each chemical and label it with their initials upon receipt.
2. They immediately update the chemical inventory that they have posted inside their lab.

The chemical stockroom does this for all chemicals in the teaching labs.

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We approve PO's and we are copied on HAZMAT P-Card Purchases for review and action if necessary. HAZMAT P-Card holders are trained by EHS on volume limits, PO only materials, and when to reach out for support.

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We utilize a work order software system through Facilities where approval requests for purchasing hazardous materials and/or equipment containing or utilizing hazmats are submitted and approved by the Director of EH&S or delegated EH&S staff.

A PO or credit card purchase can't be processed without prior authorization. The purchase of hazardous materials protocol is included in the Procurement/Purchasing manual and the same model for donations. We used emails in the past for approvals, but we are finding this works better.

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We used to be able to use our procurement credit cards (ProCards) after being trained by EH&S on Hazardous Materials handling, but the Procurement department has walked that back recently with an exodus from the area of knowledgeable staff with historical knowledge. Now we are being told we can only order using an Open Purchase Order or with an approved Exception Request made to the Procurement Department to use credit card.

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EHS has been doing approvals for 30-40 years. Started with radioactive materials, and then I was given the project maybe 25 years ago and it grew to include a lot more.

After 9/11, and CFATs and the bio regulations came into being, the program grew again to include many of the CFATS chemicals, select agents, high toxic toxins, etc. We continually add to it; most recently 3D printers, boats and water craft and now insurances dept's try to buy over and above our policies.

We do this 2 ways:

\* Through our Purchasing Dept. We have many items listed. Some by the 8-digit commodity code and others by name, and this includes all capital letters, mix of caps and lower case and then all lower case. Our system has a hard time with caps.

\* Through the P card reviews. We have advertised this process over and over and over to try to get the word out for these to be reviewed and approved before items are purchased. We still get folks that buy something, find will not pay for it and either have to return it or pay for it themselves and get it off campus.

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In my experience working with large, mid-sized and small campuses, here are my 2 cents.

I would say probably yes, size is a factor. Practicability is probably inversely related to size.

\* Large universities may have too many "moving parts" to readily establish and maintain centralized control by EHS, and EHS may not want to expend their political capital trying. Software tools, staffing and campus community cooperation would all be factors that could make or break the effort.

\* Despite limited EHS staff resources, mid-sized to small universities have far fewer chemicals, fewer departments, less institutional inertia, and greater adaptability to make changes. In the case of our campus (mid-sized), it happened by presidential edict, reorganizing EHS responsibilities. Our three "smalls" can readily work with their few departments/faculty to make it happen, much more personally.

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Orders must go through our stockroom coordinator, who is on our lab safety committee (along with science chairs). Hence if something we have not seen before comes up, we can review it. Once the stockroom orders it and it arrives, we inventory it so I as CHO can see what we have on campus.

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At a large manufacturing company that I used to work for, we implemented a New Chemical Review Process. We worked with the purchasing department to ensure that no new chemicals were purchased unless they had been through this review process. I don't think we would have been able to get this process except for the very high cost of disposal of some hazardous chemicals through lab packs and the high cost of industrial hygiene monitoring that we needed to do when certain hazardous chemicals were purchased (methylene chloride in this case). So, the New Chemical Review Process was sold as cost savings to prevent unwanted chemicals in the building. This was many years ago, but I believe the process started with the engineer who filled out a form with the SDS attached sending it to Purchasing, Purchasing sending it to EHS, and then back to Purchasing.

Some of the smaller manufacturers that I work with now, do not have a formal process. The EHS person at these small manufacturers is usually a quality person or manufacturing supervisor. They are probably the person tasked with getting the SDS into the system or figuring out VOCs for their air permit. They then find out about the hazards of the chemical after the product has been ordered. I hope this is what you are looking for.

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We had a lot of "moving parts" here with all our labs, locations, and researchers. My predecessor in procurement selected the Research Materials management system by Jaggaer since it directly integrated with our procurement system. Credit Card purchases are our next hurdle. Let me know if you would like more info.

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We use an online ordering system called Sciquest. Any item that has a CAS #, along with chemical mixtures are automatically sent to a special Safety Department chemsafety email before the chemical order goes to the company. The Safety Department will either approve the order or if we have problems with the chemical, we can reject the chemical order before entering the chemicals into a chemical database (EH&S Assistant, On Site Systems). Once the chemical arrives at the Center, it will get a labeled bar coded number and be sent to the lab. What I like is that I can at any time get an immediate picture of chemicals and their hazards for each lab. Hope that helps. Feel free to contact me if you need more information.