

Lesson Learned/Best Practice Briefing

No.: LL/BP21-0032

Title: Restricted Chemicals Require Approval

Event: LBNL Event

Event Date: 07/13/2021

Category: ESH-Chemical - Chemical Hygiene-General, Toxic Compounds (All)

Discussion:

Use of explosives, toxic gases, highly toxic, pyrophoric or water reactive chemicals is restricted at Berkeley Lab due to their inherent safety hazards that require special safety controls and authorizations. These chemicals must be reviewed and approved before they arrive onsite. The list of restricted chemicals may be found here: [CHEMR - Restricted Chemicals and Gases](#)

The Procurement Department has a quarterly assurance process in place to verify that restricted items, including chemicals, are properly routed for approval. In May 2021, Berkeley Lab implemented an additional assurance process to complement the Procurement Department process, which cross-references new entries into the Chemical Management System (CMS) against restricted chemical approvals. Based on these processes, an ongoing challenge is that some purchases as discussed below are not being approved before they arrive onsite. The purpose of this Lessons Learned briefing is to raise awareness of these situations and to provide the actions to prevent recurrence and mitigation strategies that have been implemented.

The first situation is the most common. Most chemicals arriving onsite are purchased through vendor catalogs on eBay. Restricted chemicals in the vendor catalogs are given a special code which is recognized by Berkeley Lab's Financial Management System (FMS). When FMS "identifies" a chemical with this special code, an email notification is triggered and sent to the Berkeley Lab's Subject Matter Experts (SMEs) responsible for chemical approvals and pauses the chemical purchase. SMEs responsible for approving restricted chemicals review the chemical and determine if it can be approved for use on site. The assurance process found cases where a vendor did not code their chemical properly and other cases where a vendor modified their catalog but did not update the code. As a result, chemicals were not properly routed for approval before

they arrived onsite.

The remaining situations are less common but may still occur. If a chemical is purchased through ePro, the Requisition Preparer needs to disclose that the chemical is restricted by selecting CHEMR as the Item Category Code. If not identified as a CHEMR restricted chemical, it is not flagged for approval.

In other situations, chemicals are acquired outside of Berkeley Lab's procurement channels. Chemicals may be transported from UC Berkeley or they may be shipped to Berkeley Lab as part of a user experiment or scientific collaboration. In one case, a chemical was purchased using a corporate credit card and shipped to Berkeley Lab. If a chemical is acquired outside of Berkeley Lab's procurement processes, there is no automated process that alerts the RIL approvers of the shipment and pending arrival of these chemicals. The only way for these to be reviewed and approved before they arrive on site is for the person making the decision to allow these chemicals onsite to contact the SMEs responsible for approving restricted chemicals.

Actions to Prevent Recurrence:

1. Be familiar with the [institutional expectations](#) for procuring explosives, toxic gases, highly toxic, pyrophoric or water reactive chemicals as well as [general controls](#). If you are responsible for making chemical purchasing decisions or making decisions about which chemicals to allow onsite from other institutions, be familiar with institutional expectations which include minimizing the risks, planning the work, and understanding policies regarding procurement of restricted items and CHEMR chemicals.
2. Plan for work involving explosives, toxic gases, highly toxic, pyrophoric or water reactive chemicals. An active WPC work activity should be available that describes the scope of work and identifies the proper hazards prior to procuring any of these chemicals.
3. Know when you are purchasing or accepting delivery of explosives, toxic gases, highly toxic, pyrophoric or water reactive chemicals. Compare the chemical that you intend to purchase with the restricted items list, [CHEMR - Restricted Chemicals and Gases](#). Beyond awareness, the person making the decision to purchase such a chemical or obtain such a chemical from another institution is required to initiate and obtain approval to use this chemical when automated processes are not used (e.g. eBuy).
4. Notify EHS approvers when obtaining explosives, toxic gases, highly toxic, pyrophoric or water reactive chemicals outside of institutional procurement channels. Review the chemical against the RIL CHEMR list: [CHEMR - Restricted Chemicals and Gases](#). If the

chemical is on the RIL, send an email to CHEMR@lbl.gov with information about the chemical. You may also request a review on the Restricted Chemicals [Website](#). When in doubt, don't guess. Contact EHS at CHEMR@lbl.gov.

5. Participate in retroactive approvals. There will be cases when a chemical arrives without approval. Berkeley Lab's assurance processes are designed to identify these situations. Approval is still required in these cases and will be completed retroactively. In some cases, it may be necessary to return the chemical until appropriate WPC activities and approvals are in place.

Lessons Learned are part of the ISM Core Function 5, Feedback and Improvement. Applicable Lessons Learned are to be considered during working planning activities and incorporated in work processes, prior to performing work.

Please contact the following subject matter experts if you have any questions regarding this briefing.

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