Machining Unidentified Material Results in Potential Asbestos Exposure

A machinist was fabricating spacers out of 1/8-inch thick gasket material. The equipment used included a band saw, a one sided razor blade, and a belt sander. After fabricating two spacers from unmarked remnants, the machinist sought additional material to fabricate the rest. A larger sheet of the same material was found in the shop. When the machinist turned it over, he found “Asbestos” markings on the other side. The machinist immediately stopped all work, shut down the air and heating systems, and called his supervisor. The area was secured with caution tape, labeled “Asbestos Do Not Enter” and subsequently cleaned to remove asbestos contamination.

Figure 1. Sheet of Garlock 7021 with faded asbestos caution marking.  Figure 2. Sheet of Garlock 7021 with more-legible asbestos caution marking.

The remnant material was not appropriately identified and labeled as asbestos, and the machinist fabricated the spacers without knowing the content of the material. The full sheet of additional stock material was water marked by the manufacturer as Garlock 7021 and is identified as containing asbestos. The water marks on parts of the material have faded and are no longer legible.

Garlock 7021 is a compressed asbestos sheet gasket material manufactured by Garlock Inc. through the early 1980s. It is 80% to 90% Chrysotile asbestos by weight embedded in an elastomer compound matrix. Under ordinary conditions of use, hazards arise only if the product is subjected to mechanical actions that would cause asbestos fibers to be released. The potential for the release of asbestos fibers occurred when the machinist used a band saw, one sided razor blade, and belt sander to fabricate shims. Garlock, Inc. replaced its asbestos products with BLUE-GARD, a non-asbestos gasket material in the early 1980s.

Housekeeping and material handling and storage activities in the shop were not sufficient to identify the improperly stored material. Neither the drawer that contained the remnant pieces nor the area where the full sheet was located were posted with asbestos warning signs or designated as areas containing asbestos.
Machining Unidentified Material Results in Potential Asbestos Exposure
LL-2013-LLNL-18, October 8, 2013, LLNL-POST-644382

Asbestos. If present during an institution-wide hazard assessment to identify and remove asbestos conducted approximately 20 years earlier, this material should have been disposed of at that time.

Recommended Action

Before handling any material, workers need to be aware of what they are working with, the potential hazards, and the appropriate controls.

1. Verify the material you are working with through the use of a material stamp or other identifier on or attached to the material, a procurement record, or material analysis traceable to that item.
2. If uncertain about the content of the material you are working with, pause work and consult with your supervisor, ES&H support personnel, or other appropriate authority.
3. Understand that your housekeeping and recordkeeping are important contributors to material traceability and control. Making sure that remnants and other pieces are appropriately marked, stored and accounted for aids the identification of hazards and appropriate controls.

Where to Get Help or More Information

- Your supervisor.
- Your ES&H Team.
- Asbestos Subject Matter Expert: Philip Bumala (bumala2@llnl.gov, 925-424-5553).
- Your Facility Point of Contact.
- To search for other LLNL Lessons Learned, go to the "Lessons Learned" web site (https://cao-int.llnl.gov/lessons_learned/), select the topic of interest or click on "Search" and enter a keyword.

Work/Function Categories (HSS entry): Conduct of Operations - General, Human Factors, Machining & Fabrication, Occupational Safety and Health – General.
Hazard (HSS entry): Personnel Injury/Exposure – Asbestos.
ISM Category (HSS entry): Analyze the hazards, develop controls, perform work within controls.
Keywords (HSS entry): asbestos, Garlock 7021, housekeeping, gasket, spacer.
Subject Category (LLNL LL web page): Conduct of Operations, Construction/ Equipment/ Working Surfaces.

Please Post
LessonsLearned@llnl.gov