Framework for Encouraging Employers to Identify

SAFER ALTERNATIVES TO HAZARDOUS CHEMICALS

December 2019

A Report to the Joint Standing Committee on Labor and Housing

MAINE
DEPARTMENT OF
LABOR
Bureau of Labor Standards

Maine Department of Labor
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A Framework for Encouraging Employers to Identify **Safer Alternatives to Hazardous Chemicals**

Report to the Joint Standing Committee
On Labor and Housing

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Authorized by the 129th Maine Legislature
LD 1017 SP296

RESOLVE

LD 1017, SP 296, 129th Legislature

Resolve, To Direct the Department of Labor To Develop a Framework for Encouraging Employers To Identify Safer Alternatives to Hazardous Chemicals

Sec. 1. Development of framework for safer alternatives to hazardous chemicals.
Resolved: That the Department of Labor shall, in collaboration with interested parties and employers and employees in industries that are likely to utilize hazardous chemicals, develop a framework for identifying hazardous chemicals used in the workplace and identify safer alternatives to those hazardous chemicals. The department shall submit a report to the Joint Standing Committee on Labor and Housing by December 20, 2019 that includes a proposed framework, a list of participants who participated in developing the proposed framework and a summary of the process used to develop the framework. The committee may report out a bill to the Second Regular Session of the 129th Legislature based on the report.

APPROVED JUNE 5, 2019, BY GOVERNOR CHAPTER 47 RESOLVES

Process

The Maine Department of Labor identified employers and employees in industries likely to use hazardous chemicals and other parties interested in pursuing reductions in the use of such chemicals. MDOL convened this group three times during October and November. The individuals identified below each attended one or more of these meetings, or in a few cases participated by phone; some also contributed separately by email.

At the initial meeting, MDOL described the purpose of the discussion with reference to the Committee's Resolve, above. Department staff mediated the ensuing discussion over the course of the three meetings lasting about two hours each. During and between meetings, the Department provided data and other support materials and circulated notes to help inform the discussion.

After the third and final meeting, MDOL drafted and circulated for all participants' review a report based on their discussions. The draft report contained elements of a framework for identifying hazardous chemicals in the workplace and safer alternatives to those chemicals. Participants had the opportunity to offer comments and recommend changes to the draft, and MDOL incorporated some of their suggestions in final draft. The result is this report, consisting of a narrative summarizing the discussion and a list of projects suggested as solutions to problems we identified.

List of Participants

Name	Organization
Senator Brownie Carson	Maine Legislature
Mike Higgins	United Steelworkers
Anna Fendley	United Steelworkers, District 4
Adam Goode	Maine AFL-CIO
John Newton	Maine Labor Group on Health, Maine AFL-CIO
Curtis Picard	Retail Association of Maine
Jean Wheat	SAPPI
Ron Lessard	BIW
Megan Patterson	Board of Pesticides Control, DACF
Scott Knowlen	Cianbro
Mike Williams	BlueGreen Alliance
Jeremy Sales	University of Maine
Pat Strauch	ME Forest Products Council
Matt Marks	Associated General Contractors
Patrick McRoy	Environmental Health Strategy Center
Lisa Miller	Maine Labor Group on Health
Carol Sanborn	McTeague, Higbee
Robert Knowles	BIW
Mark McDonald	United Steelworkers
Pam Bryer	Board of Pesticides Control, DACF
Leslie Walleigh	Maine Center for Disease Control/DHHS
Stacey Keefer	Maine Marine Trades Association
Isaac Gingras	Maine Department of Labor
John Rioux	MDOL
Mike Roland	MDOL
Steve Greeley	MDOL
Kara Littlefield	MDOL
Sharon Holmes	MDOL
Evie deFrees	MDOL
Victor Tardiff	MDOL

Narrative

The Maine Department of Labor (MDOL) was tasked with establishing a workgroup and holding several meetings to fulfill the Resolve which seeks to develop a framework for safer alternatives to hazardous chemicals. The group understood that the goal was to promote voluntary progress through education and improved access to available resources. Participants recognized the common interest in minimizing the risks of exposure to harmful substances, and MDOL's responsibility to help minimize that risk in Maine's workplaces. Some effects of exposure are immediate and visible; others are long-term and not immediately known or recognized. MDOL currently has limited ability to detect and report the latter.

The Federal Occupational Safety and Health Administration provides a "Hierarchy of Controls," which divides into five categories the methods of controlling risks exposure in the workplace:

- **Elimination** of the exposure, removing the substance or danger from the workplace entirely
- **Substitution** of one substance or exposure for one less risky
- **Engineering**, separating the person from the exposure
- **Administrative,** changing the way people do the work to lessen the amount of exposure or the harm from exposure
- Employing **Personal Protective Equipment** to create a personalized barrier to the exposure.

The list is prioritized from most desirable to least desirable in terms of effectiveness and likelihood of compliance. Elimination is the most desirable and substitution the next most desirable in lessening exposure risk. Elimination includes removing the demand for and hopefully the creation of an undesirable substance while substitution lessens the risks or damage associated with a more toxic substance.

OSHA also offers help in detailing a process that identifies toxic substances in the workplace, evaluates risks and substitutes and plans replacement. It includes participation by line workers to ensure their buy-in. This may be more effective for larger companies, though it would be useful for any company.

MDOL Safety and Health Division Director Steven Greeley noted that OSHA Course #7225, "Transitioning to Safer Chemicals," will be offered at MDOL's SafetyWorks! Training Institute in Augusta for the first time in Spring of 2020, and that the Bureau plans to send some of its staff to the training.

The group observed that increasingly complex methods are being used to create long-lasting substances. The result can be substances (often referred to as "forever chemicals") that cannot be rendered harmless without substantial mitigation intervention. Members agreed that more desirable substitute substances do their work and then break down into harmless common substances within the natural environment. Additionally, these substitutes should have small, easily-mitigated and/or well-known risks associated with their use and storage, and if accidentally released into the environment should quickly and easily break down into common and harmless components. The Environmental Protection Agency provides resources to help businesses choose less harmful chemicals for the workplace and home.

At the first meeting on October 4th the group considered existing online resources and discussed their strengths and weakness. In response, BLS Deputy Director John Rioux assembled for review at the second meeting on October 25th some of the more common authoritative websites available to the public (see Appendix for the working document).

Some sites indicated chemicals and their risks; others sorted chemicals for uses by desirability. None of the sites reviewed were entirely satisfactory to members of the group. Among the group's concerns were:

- None of the sites provided sufficient detail regarding the uses of substitutes for hazardous chemicals in specific situations and in specific industries.
- Special requirements and restrictions in certain industries (e.g. disinfectants that are pesticides subject to state registration) need to be considered.
- Existing sites had to be searched via Google, producing results that included commercial products suspect for objectivity and reliability.

The group observed that while larger companies often have staff dedicated to evaluating and choosing chemicals, smaller companies lack such staff and might not be able or willing to pay for an on-line service that helps in that regard. Such costs are a significant barrier for smaller businesses.

It was evident early on that there was interest in creating a site that would address specific uses in Maine workplaces and bring resources together in one package with guidance for their use and limitations. The group agreed that a curated site which gathers and describes pertinent information would be helpful, especially to small businesses. The collection of sites might include both free and pay sites deemed respected and authoritative. Industry-specific needs and inevitable changes in information on chemicals should be accommodated, as with commercial on-line services that some participants' companies use. An ideal site would include:

- Context on why substitution is important in the environment and workplace
- Industry-specific cautions and information regarding use
- Links to sites, with descriptions of their strengths, limitations and costs or other requirements

In response, one workgroup participant (Pamela Bryer of DACF) developed this prototype which brings together the elements and sites the group looked at: https://sites.google.com/view/chemical-substitution-resource/home.

At the second meeting, participating representatives of various business organizations agreed to ask their members whether such a website would be helpful to them and whether they would be likely to use it. The response was overwhelmingly positive, especially among smaller establishments.

As the workgroup meetings were drawing to a close, MDOL suggested that—in order to advise the Bureau regarding its work on some of the goals the group agreed are important—the group might continue to meet in some form after the Department's Report to the Legislature was submitted. Many of the participants expressed support for this idea and a willingness to continue meeting.

Based on the discussions described above the following recommendations emerged. Some of these can probably be accomplished by the Bureau with existing resources, in some cases in collaboration with other agencies. Other projects would require additional resources.

Recommendations

Low Cost/ No Cost

(MDOL believes the following projects can be undertaken with resources currently available)

- Continue working to create a page or section of MDOL's website, such as the prototype described above, that would address the challenges of Maine's workplaces. This would involve:
    - Providing necessary training for current Safety and Health Division staff and dedicate some staff time to create and maintaining the site.
    - Engaging with other state and possibly federal agencies to help populate such a site.
    - Researching and providing links to available online trainings, especially industry-specific trainings, in Elimination and Substitution.
    - Clearly identifying cost or membership requirements to access any linked sites.

- Require selected Safety and Health Division staff to complete OSHA Course #7225, "Transition to Safer Chemicals" (mentioned above), and
    - apply resulting knowledge and skills to regular SafetyWorks! consultation practices and, where appropriate,
    - include an element addressing identification and substitution of hazardous chemicals in the workplace.

- Continue the conversation by convening periodic meetings with this group and others—including DEP, DHHS and other state agencies—to advise the Bureau on its work and to help identify more resources and ideas for motivating and facilitating substitution. (A previous vehicle for such cooperation by various parties around workplace safety and health research, known as the Maine Occupational Research Agenda, might serve as a model.)

- Possibly in conjunction with other agencies such as those above, develop and distribute materials, conduct focused educational efforts and public information campaigns regarding the identification and substitution of hazardous chemicals in the workplace.

Significant Cost

(MDOL believes the following projects would require additional resources as noted)

- Bring in higher-level education resources for training trainers and key industry proponents (*no cost to tens of thousands of dollars per session*)
    - U Mass Lowell
    - DEP
    - OSHA
    - Other groups and agencies

- Use existing data to prioritize exposure reduction (*likely hundreds of thousands of dollars obtaining, tabulating and analyzing data, possibly one-time but more likely needed for a few years*)
    - Evaluate and analyze underutilized exposure and medical data sources to emphasize chemicals and/or industry. Possible sources:
    - National Poison Control hotline
    - Maine CDC Occupational health reports
    - Maine Health Data Organization health care claims data reports
    - Vital statistics death certificates

- List of priority toxic chemicals to substitute (*one hundred thousand dollars, one time, to several hundreds of thousands of dollars for several years, depending on whether Safety Data Sheets only or materials beyond SDS's are included*)
    - Establish criteria for classifying ranging from "toxic" to "substitute".
    - Research and evaluate individual substances perhaps based on existing SDS data.
    - Include alternate processing as substitute. (I.e. preventing rust rather than removing.)
    - List and make available

- Industry specific consultation, research and substitution training (*one hundred thousand dollars, ongoing, per consultant to develop and deliver training*)
    - Partner with specific industries or groups
    - Inventory common needs or chemicals
    - Research more-desirable processes and substitutes.

- Create position(s) for a dedicated individual or group to conduct research and consultation on substitutions. (*one-hundred thousand dollars, ongoing, per consultant*)
    - Train one or more MDOL SafetyWorks! consultant(s) to go more in depth at individual businesses to consult in the substitution aspect of consultations or train and divert existing consultants as specialists.

Appendix —Helpful Sites and their strengths and weaknesses

The following was a working document offered to the group evaluating sites that address toxic substitutions that illustrates the issues encountered on them.

Known Internet Resources

One thing we talked about is creating a WEB site with resources to encourage and facilitate toxic substitutions. Here are some sites and you might share others.

This is the site that details U.S. OSHA's suggested process for chemical substitution: https://www.osha.gov/dsg/safer_chemicals/basics.html It lacks some context as to why it is important to substitute. We may want to refer to OSHA's hierarchy of controls for some workplace reasons. https://www.osha.gov/shpguidelines/hazard-prevention.html This site from the European Union adds some additional social context in the Drivers and Barriers and also suggests a process for substitution: https://oshwiki.eu/wiki/Substitution_of_hazardous_chemicals.

On the OSHA site this details a process to use to ensure adequate substitution: https://www.osha.gov/dsg/safer_chemicals/step1_engage.html. It appears to be a good process to use for those that have the resources to do so.

One of our occupational health consultants suggested this site and so far it seems to be the easiest site use for people not into chemical engineering: https://www.epa.gov/saferchoice/safer-ingredients#scil. It shows side-by-side problem chemicals and substitutes with a color-coded key. (If you get a null list, you may have to select the "Clear Options" item—possibly a browser anomaly.) It doesn't tell people how to use the substitutes. It might be coupled with this site that does. This site seems to detail more about the use of Peracetic acid, for example, as a food-safe antimicrobial. https://pubchem.ncbi.nlm.nih.gov/compound/6585

If the company has a specific chemical they are questioning, there are these sites that list chemicals and hazards including exposure levels, interactions and storage cautions. They do not appear to provide substitutes.

OSHA https://www.osha.gov/chemicaldata/

NIOSH: https://www.cdc.gov/niosh/chemicals/dbsandtools.html

New Jersey: https://web.doh.state.nj.us/rtkhsfs/indexfs.aspx

New Jersey's is a comprehensive list of chemicals and substances and their known risks and PPE mitigation methods. It mostly tells the reader the toxic effects and cautions about exposures and interactions with other chemicals and substances. I believe California has a similar list.

As for actual substitution, for common and everyday use such as household and office cleaning, a common source for information appears to be "Mother Earth News". Example: https://www.motherearthnews.com/green-homes/green-household-cleaners-zmaz90jazshe It is anecdotal though, consisting of stories about substitutions versus anything scientific or evaluated.

A workplace-specific help site would be better as it could refine the choices to what works best in a specific situation. If, say, a restaurant wanted something antimicrobial, they would be more likely to want something that would not be a poison should it come in contact with food and the substitutes might be ranked based on that. In addition, the restaurant would want to know the safe concentration, application methodology, and possibly other details for safe usage around food.

For the chemical engineers, there are these highly detailed sites:

COMAR https://rrr.bam.de/RRR/Navigation/EN/Reference-Materials/COMAR/comar.html (Requires free registration to access.) It is highly technical. The user guide illustrates this: https://rrr.bam.de/RRR/Content/EN/Downloads/comar-user-guide.pdf?__blob=publicationFile

On the cutting edge, looking for new substances with evaluation of their potential toxicity and long-term effects, is this EU site: https://www.baua.de/EN/Topics/Safe-use-of-chemicals-and-products/Innovative-materials/Innovative-materials_node.html

(One item of note is if you go to EU sites, note the EN in these links. If you get DE, or FR, substitute EN to see the English version.)

These sites all appear to be open and free. At least one requires a logon. We may need to request permission to link to their sites.

Please look at these and share ones you have and note what elements from them might be useful to put into a model and site we create.

Next steps: Prototype?

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