



SEPTEMBER 2022

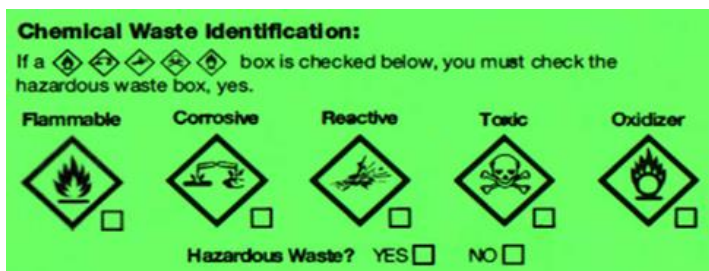
Proper Chemical Management

The research conducted at the NIH is crucial for improving health and saving lives. As the nation's medical research agency, it is of the utmost importance that the NIH can accomplish its mission without jeopardizing the environment or human health. Medical research calls for many chemicals that require proper handling and disposal, while also exploring safer chemical alternatives that offer similar usefulness.

Safer alternatives exist for some of the toxic chemicals used in a medical research lab, such as ethidium bromide. Ethidium bromide is used as a fluorescent marker to stain DNA, which enables visualization of nucleic acids in electrophoresis or other gel-based separations. Ethidium bromide is a mutagen with carcinogenic effects due to its ability to bind to DNA. [SYBR Safe DNA Gel Stain](#) from Thermo Fisher is marketed as "a highly sensitive stain for visualization of DNA in agarose or acrylamide gels" that is "specifically formulated to be a less hazardous alternative to ethidium bromide." Another toxic chemical is xylene, which is primarily used as a clearing agent in light microscopy. Xylene exposure can have short and long-term effects on the central nervous system. One alternative to xylene as a clearing agent is [Histo-Clear from VWR](#). This product contains distilled essential oils to perform as a non-toxic clearing agent alternative. Histo-Clear and SYBR Safe Stain are only two examples of many safer chemical alternatives. A handy way to identify safer chemical alternatives is through eco-labels like the [EPA Safer Choice label](#). The databases maintained by the [USDA BioPreferred Program](#) and the [GSA Sustainability Tool Kit](#) may also be useful for identifying chemical alternatives. A list of eco-label recommendations for federal purchasing can be found on [the EPA website](#).

Proper management of chemicals also requires ensuring they are properly handled and disposed. For guidance on handling chemicals, please reference [the Division of Occupational Health and Safety webpage](#). For disposal, only chemicals [approved for drain disposal by the Division of Environmental Protection \(DEP\)](#) may be disposed of down the drain. Wastewater is typically treated with a physical separation phase and a chemical separation phase that targets the most common contaminants. Due to the general nature of decontamination, chemicals may pass through the wastewater treatment plant and enter the environment. For this reason, we must adhere to the policy described in the [NIH Drain Discharge Guide](#).

It is also important that chemicals are labelled with their hazards on the NIH Chemical Waste Tag to ensure they are properly managed and meet the legal requirements. The image to the right shows the hazard pictograms included on each tag. If you have any questions about the hazards of your waste, consult the safety data sheet (SDS) for the chemical or contact DEP at 301-496-7990. You may also find the [Hazardous Waste Search Table](#) useful for identifying the hazards of your waste. Please note that this table does not include every chemical possible, so exclusion from the table does not indicate a lack of hazards. If we all follow the guidelines for properly managing chemicals, we can continue the NIH mission while promoting human and environmental health.



EVENT

NIH Green Labs Fair

On the NEMS Website

Live Q&A Session:

Thursday, Oct 27, 12pm-1pm

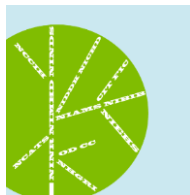
<http://nems.nih.gov>

2022 NIH Green Labs Fair

Green product listings for the 2022 NIH Green Labs Fair are available on the NEMS website. Additionally, a live Question and Answer session will be held on October 27, 2022 from 12-1pm for all topics related to green labs. Read the full article for more details on the 2022 NIH Green Labs Fair.

[LEARN MORE](#)

TAKE ACTION



2022 NIH Green Labs Program

The 2022 NIH Green Labs Program is now open! Complete the self-assessment form to have your lab certified as an NIH Green Lab. Your lab could even earn the new Platinum level certification! Click on the link below to learn about the Green Labs Program.

[LEARN MORE](#)

NEMS TRAINING

Did you know? All approved waste that is disposed to the sanitary sewer must be between a pH of 6 and 10 at the point of disposal. To learn more about waste management at the NIH, please visit the [NEMS Training webpage](#) to view a short (20 minute) NIH environmental awareness training video.