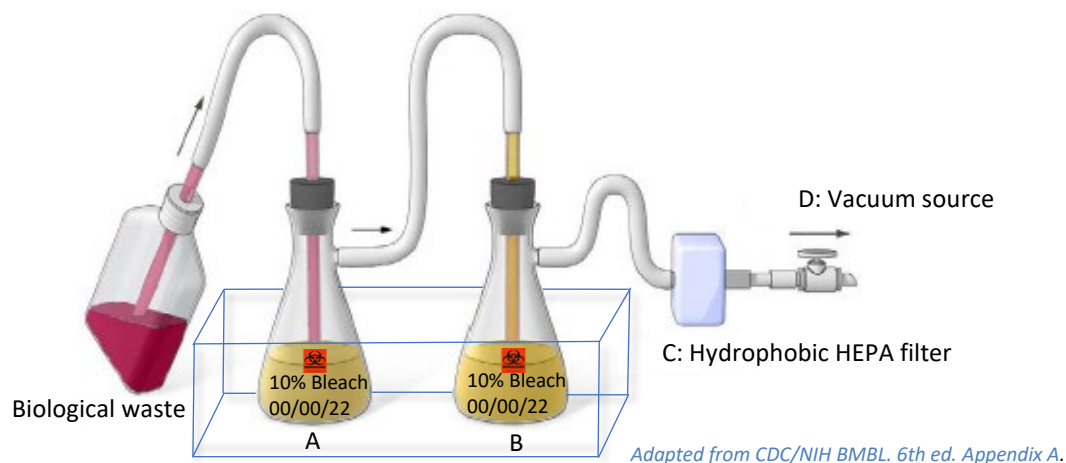




## Proper assembly of vacuum traps for biological liquid waste

Vacuum aspiration is used to inactivate liquid biohazardous waste. The following recommendations provide guidance in performing vacuum aspirations effectively so that vacuum systems and service personnel are protected when working with recombinant or infectious biological agents and toxins.



1. Aspirator is connected to collection flask (A) and overflow flask (B), both containing appropriate disinfectant. In-line hydrophobic HEPA filter (C) is installed before the house vacuum line (D). Insert the pipet tip below the liquid you wish to remove to avoid generating aerosols. Use thick-walled plastic tubing (to prevent tubing collapse) and shatterproof flasks (to prevent implosions).
2. If the vacuum assembly is located under a biosafety cabinet, flasks must be stored in a plastic, leak-proof secondary container (bin or tray) to contain spills in the event of accidents or breakage. Flasks (A) and (B) can be in one or separate bins.
3. If the setup is inside a biosafety cabinet, or on an open bench in plain sight where it can be monitored, a single suction flask (A) containing an appropriate disinfectant may be used. In this case, a secondary bin is recommended but not required.
4. Apply Biohazard label (available from EHS) to flasks. Label with contents (e.g., culture media, disinfectant used, and date the disinfectant was added).



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5. Prepare vacuum flasks with bleach prior to adding biological material, flushing the line in between additions to equal final concentration of 10% bleach by volume. Please consult with Harvard EHS Biosafety for use of disinfectants other than bleach or if [working with Qiagen kits in conjunction with biohazards](#).
6. At the end of the procedure, or when flask is two-thirds full, add additional concentrated bleach to achieve a final concentration of 10% bleach. Let sit for least 30 minutes prior to drain disposal. If possible, dispose daily or when two-thirds full, but keep no longer than a week. Flush with plenty of water.
7. Orient the hydrophobic HEPA filter with the inlet toward the flask and the outlet toward the vacuum. Change filter at least annually, or immediately, if clogged. Dispose of expired filters into the regulated medical waste receptacle. Turn off the house vacuum line when work is completed. Do not clip or bend the hose.

#### Precautions:

- If you autoclave your waste, do not pre-treat with bleach. Bleach is not safe to autoclave.
- If there are any chemical constituents, other than the disinfectant, or radiological constituents that are not acceptable for drain disposal, the tissue culture waste must be managed as a hazardous waste. Consult your LSA.
- If working with biological toxins or spore-producing bacteria, contact Harvard EHS Biosafety to determine if 10% bleach is sufficient for inactivation.
- Not all filters are appropriate for protecting vacuum lines.
  - DO NOT USE the 0.2-micron filters that are used for filter-sterilizing solutions. These allow liquid to pass through the filter.
  - USE an appropriate hydrophobic filter that will not allow liquid to pass through the filter. Examples are:
    - Pall Vacushield (#4402)
    - Whatman HEPA-Vent (#6723-5000) and Vacu-Guard (#6722-5000)
    - Millipore (#SLFG05010) and (#SLFG75010)

#### Additional References:

- [The CDC/NIH Biosafety in Microbiological and Biomedical laboratories. 6th ed.](#)
- [NIH Guidelines](#)