



RIVERSIDE

Environmental Health,
Safety and Risk Management

12 MONTHS OF RESEARCH SAFETY 2025

THE HIDDEN DANGERS OF LECTURE BOTTLES

Lecture bottles may look small, but they contain high-pressure, hazardous gases and pose serious safety and financial risks. These cylinders are not refillable or returnable, and disposal costs often exceed the purchase price. Before you order a lecture bottle, consider safer alternatives.

Lecture Bottles Impacts

Safety Concerns

- Contain toxic, flammable, corrosive, or pyrophoric gases.
- No pressure relief devices → risk of rupture if heated or mishandled.
- Improper labeling/storage increases accident risk.
- Users may lack specialized regulator and handling training.
- Small size = often overlooked



Financial Burden

- Not refillable or returnable → always a disposal liability.
- Disposal costs: \$500-\$3,500 per bottle
- Only two facilities in the U.S. are authorized to dispose of them.
- Transport + disposal = hidden long-term costs for your lab.
- Stockpiled bottles become legacy waste for the university.

Safer Alternatives

- Use refillable DOT-approved cylinders – returnable through vendors.
- Install on-demand gas generators (H_2 , N_2 , O_3).
- Choose chemical substitutes/precursors when possible.
- Purchase only with vendor return agreements.
- Always consult EH&S before buying.

Gas Cylinder
Inventory Guide



Best Practice - Before You Buy

Before purchasing a lecture bottle, first ask whether there is a safer or more cost-effective alternative. If a lecture bottle is truly necessary, plan for the high disposal costs in advance, ensure it is entered into the UC Chemicals Inventory at the time of purchase, and contact EH&S for review and approval prior to placing the order.

CONTACT US

Phone: 951-827-5528

Email: ehslaboratory@ucr.edu

Website: <https://ehs.ucr.edu/laboratory>

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Questions?