BERKELEY LAB
Environment,
Health & Safety

For your own safety and that of your colleagues, peroxide-forming compounds in your lab must be properly identified, managed, and disposed.

Guidance on How to Label, Inspect, and Dispose of Potassium Metal

1. Pre-inspection

Potassium metal should be a shiny or dull grey, depending on how it is packaged and stored. The higher the surface area, the more likely it is to oxidize and form peroxides, so try to keep your potassium metal in large chunks whenever possible. Do not cut or puncture pieces of potassium metal that have not been visually inspected and confirmed to be free of peroxides.

Do not open or disturb containers of potassium metal if:

- You see yellow, orange, or black discoloration (indicates peroxide formation)
- The container is of unknown age
- The container has exceeded its shelf life

2. Labeling

Peroxide forming chemicals shall be properly identified. Labels can be requested from EHS.

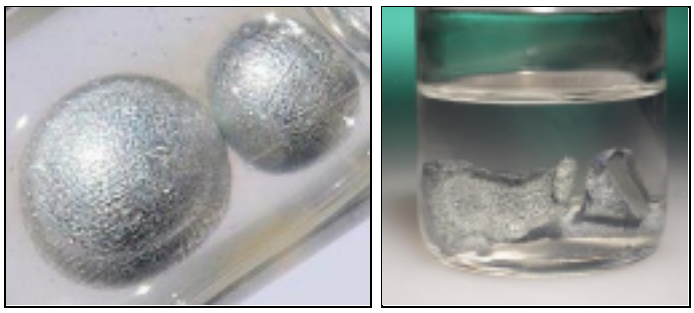
or

***Note:** Don't cover chemical identity, lot number, or hazard information on vendor labels when applying labels. Small labels are available. Fill out the label completely.*

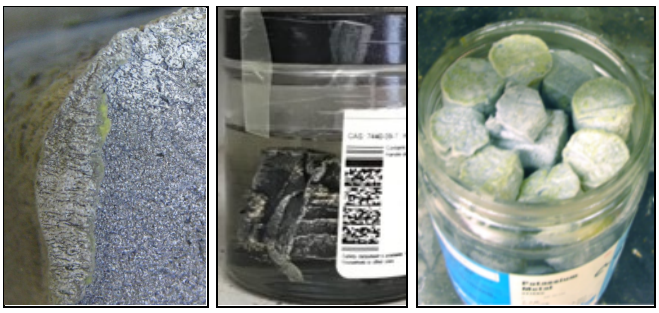
3. Annual Visual Inspection After Opening (Pass/Fail)

At least annually, inspect all potassium metal for signs of peroxide formation:

- Check date received and storage conditions. If safe to do so, inspect for signs of peroxide formation (black, orange, or yellow discoloration)



Fresh potassium metal with no signs of peroxide formation



Left: Early signs of peroxide formation as yellow discoloration. Middle: black peroxide formation. Right: More advanced yellow peroxide formation.

Annual Visual Inspection (continued)

- If the container has been stored under oil in ambient conditions, it must be disposed of within 5 years from the date of receipt, even if no peroxide formation is visible. Contact your Waste Generator Assistant for guidance.
- Containers stored in an inert atmosphere glovebox, in a completely sealed container such as an ampule, or under vacuum may be stored longer than 5 years.
- However the potassium is stored, it should be disposed of as soon as possible when it is no longer actively needed. Do not store potassium metal for potential future use.
- If any signs of peroxide formation are found, immediately contact your Waste Generator Assistant and EHS Representatives.

4. Disposal

Timely disposal of excess or old potassium metal and scraps is critical to prevent peroxide formation.

Potassium Metal Scraps:
Scraps are particularly susceptible to peroxide formation due to their high surface area and should be disposed of frequently, and as soon as possible after generation:

- Completely submerge all scraps in mineral oil
- Label as hazardous waste
- Requisition potassium scrap immediately for pickup
- Contact your Waste Generator Assistant for assistance filling out the hazardous waste label and requisition properly.

Excess Potassium Metal (unneeded or approaching the end of its 5 year shelf life):
Do not keep potassium metal that is not actively needed or that is approaching the end of its 5 year shelf life. Dispose of it right away to prevent the formation of peroxides, which can complicate its disposal.

- Carefully inspect the potassium for any signs of peroxide formation. If any discoloration is found, contact your Waste Generator Assistant and EHS Representatives immediately for assistance.
- If there are no signs of peroxide formation, ensure that the potassium is fully submerged in mineral oil. Contact your Waste Generator Assistant for assistance filling out the hazardous waste label and requisition properly.

Contact your Division Safety Coordinator/Technician or Division Health & Safety Representative or email ChemSafety@lbl.gov if you have any questions.