



Chemical Fact Sheet

Alkali Metals—Generic Safety Fact Sheet

(Lithium, Sodium, Potassium, etc.)



Alkali metals may react violently with water or moisture in the air, releasing heat or generating flammable or toxic gases; they are spontaneously combustible in the presence of water owing to the evolution of both hydrogen and heat when they come in contact. Other materials that may also cause a violent reaction with alkali metals are carbon tetrachloride and other halogenated alkanes, carbon dioxide, and halogens. Alkali metals should be stored under mineral oil in a cool dry place, and should never be put into water, carbon tetrachloride, or other chlorinated hydrocarbons. The alkali metals should be isolated from other chemicals, especially water, alcohols, or other compounds containing acidic hydroxide (OH). Use of alkali metals should be conducted wearing appropriate personal protective equipment (PPE), which includes a laboratory coat, safety goggles and chemical-resistant gloves and should only be used in a designated chemical fume hood. Potential ignition sources should be eliminated near storage and during use. In case of fire, **do not use water to extinguish—a Class D fire extinguisher** should be purchased and kept at the site where the alkali metals are used and stored.

Training

Only individuals who have received proper training may use alkali metals at the Harvard Institutes of Medicine (HIM) and New Research Building (NRB). The training shall include reading this data sheet, understanding the chemical's material safety data sheet (MSDS), and receiving appropriate instruction from supervisors on laboratory procedures.

Risks associated with the use of Alkali Metals

- Many alkali metals may also be toxic or corrosive. A MSDS must be read before use.
- Alkali metals can react violently if used with incompatible materials.
- Heat generated from a reaction with an incompatible material may ignite the hydrogen released by the reaction resulting in an explosion.

The Following Practices Must Be Followed Within Laboratories Using Alkali Metals

- Provide job-specific training to staff.
- Provide appropriate U.S. Occupational Safety and Health Administration (OSHA) chemical hygiene plan (CHP) training for all work processes.
- These chemicals must be handled inside a chemical fume hood.
- Be aware of potential ignition sources in the work area.
- Do not eat, drink, smoke, chew gum, apply cosmetics, or lip balm in laboratory areas, ever.
- Wear appropriate PPE (laboratory coats, gloves, safety glasses).
- Call 617-432-1901 if there has been a chemical spill.
- Alkali metals should be stored under mineral oil and away from water, alcohols, and sinks.
- The MSDS must be reviewed before beginning work with this material.
- For disposal of alkali metals, consult the HIM/NRB Environmental Health & Safety (EH&S) Office.
- **A Class D fire extinguisher should be purchased by the laboratory, as a Class ABC is not appropriate in the event of fire.**

Review specific MSDSs for additional storage and incompatibility information. Before staff begin handling alkali metals, the location(s) of the nearest eyewash station and drench shower must be identified.

Also See:

- MSDS for the specific chemical HIM/NRB Chemical Hygiene Plan, which is available on the HIM/NRB EH&S Webpage: <http://www.himnrbehs.com/himnrbehs/chemicalSafety.asp>
- Water Reactive Chemicals—Chemical Fact Sheet

For more information contact the HIM/NRB EH&S office, 617-432-2762.