

CODE NAME LITHIUM

The Event: During a steamy July 4th afternoon in 1999, a damaging fire erupted at the Hazardous Materials Processing Center (HMPC), where Lithium Sulfur Dioxide LiSO_2 batteries were stored for discharging. The blaze rushed through the facility, igniting all flammable materials and structures in its path before being extinguished by the Fort Riley Fire Department. Fire investigators determined that the fire started when high temperatures and high humidity caused the stockpile of discharging Lithium Sulfur Dioxide LiSO_2 batteries to explode.



The Change: From the ashes of this destructive fire came a new approach for the containment, discharge, and disposal of the installation's Lithium batteries. The HMPC was rebuilt at its current location, bldg 1930. Environmental Division purchased three storage facilities to provide an isolated, climate-controlled environment for the safe discharge of the batteries. The walls, roofs, and ceilings are non-combustible and built to withstand fire for up to two hours. The interiors have dry-chemical fire suppression systems and the floors are constructed of solid steel grating. To prevent batteries from overheating, the buildings are constructed with automatic temperature-control systems, screened air-inlet vents, fire dampers and self-contained, electro-mechanical ventilation systems to reduce the chances of fire or explosion.



Today: All batteries turned into the HMPC are inspected to determine if they are damaged and to ensure they have not exceeded their shelf life. Most Lithium Sulfur Dioxide LiSO_2 batteries are equipped with a Complete Discharge Device (CDD), which discharges the battery when activated. While discharging, the SO_2 reacts with lithium to form stable salts that are not deleterious to the environment. If excess SO_2 gas remains, it is then released slowly over a period of several days, eliminating the batteries reactivity. When it is fully discharged, a LiSO_2 battery has to still be disposed of as universal waste in accordance with U.S. Environmental Protection Agency (EPA) and State of Kansas regulations. However, Lithium Sulfur Dioxide LiSO_2 batteries must be discarded as hazardous or universal waste when they are not fully discharged.

Savings: Significant financial benefits also demonstrate the program's success. Between October 1999 and December 2013, this program saved Fort Riley about \$976,747.50 dollars. This level of savings was achieved by reducing the amount of batteries purchased through our free issue of good batteries (20,437) and the disposal cost savings.

Education: The key to the program's success has been through education and training. Individuals who order, stock, store, or use Lithium batteries need to understand the potential hazards. To that end, Fort Riley launched a comprehensive educational campaign to inform people about the potential dangers of these batteries. The educational campaign has evolved into a presentation called "CODE NAME LITHIUM." Information about pollution prevention and safety is covered in the presentation. To guarantee the information reaches the troops, Fort Riley posts bulletins and posters throughout the installation.

AT A BOY: The U.S. Army's Communications-Electronics Command (CECOM) at Fort Monmouth, New Jersey recently inspected Fort Riley's HMPC and praised the Lithium battery program in his inspection report. "The program was determined to be safe and effective and the efforts of the Environmental Division are to be lauded," the CECOM report stated.