

(1) DEVELOPMENT OF MANUFACTURING TECHNIQUES FOR LITHIUM-ALUMINUM/IRON SULFIDE CELLS

(2) DESIGN AND COST STUDY FOR THE MARK II LITHIUM ALLOY/IRON SULFIDE ELECTRIC VEHICLE

(3) PHASE I OF THE DESIGN AND DEVELOPMENT OF THE MARK II 60 kW h LITHIUM/METAL SULFIDE ELECTRIC VEHICLE BATTERY

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Development work has been directed toward: (1) the fabrication and delivery of Li-Al/FeS₂ cells to ANL for testing; (2) the development of Li-Al/FeS multiplate cell designs; (3) the development of improved Li-Al/FeS cell designs, cell components, and performance characteristics; (4) the development of electrode fabrication processes suitable for mass production; (5) the expansion and improvement of cell test facilities. Approximately fifty Li-Al/FeS₂ and forty Li-Al/FeS cells were fabricated and tested.

A design and cost study has been performed to evaluate the feasibility of designing and manufacturing a cost-effective lithium alloy/iron sulfide battery for an electric vehicle. A battery design was developed and costs were estimated for production rates of 250 and 2000 MW h/yr.

The objective of the Mark II, Phase I program in 1979 and 1980 is to develop and fabricate a lithium/metal sulfide electric vehicle battery module that will be subjected to qualification testing. This effort is expected to lead into Phase II of the program, which will entail the design, fabrication, and testing of a 60 kW h electric-vehicle battery. The current effort is directed toward the development of multiplate Li-Al/FeS cells having BN felt or MgO powder electrode separators.

Recent publications

- 1 R. J. Rubischko, L. W. Eaton, Y. M. F. Marikar, E. J. Chaney and R. E. Thompson, Performance characteristics of high-temperature LiAl/LiCl-KCl/FeS cells developed for electric vehicle applications, *Extended Abstracts Electrochem. Soc. Meeting, Pittsburgh, PA, Oct. 15 - 20, 1978*, Vol. 78-2, (1978) p. 245.
- 2 Gould Inc., Design and cost study for Mark II electric vehicle lithium alloy/metal sulfide batteries, *Final Report Contract 31-109-38-4418, November 17, 1978*.