Materials Preparation Center

Ames Laboratory's Materials Preparation Center (MPC) is a specialized research center internationally recognized for its unique capabilities in the purification, preparation, and characterization of metals, alloys, and single crystals. Each year, the MPC satisfies hundreds of requests for customized materials and services not available from commercial suppliers and that are unmatched in quality anywhere else in the world. MPC provides research and developmental quantities of high-purity materials and unique characterization services to academic, industry, and government customers on a cost recovery basis.

Capabilities include:

- Small-scale arc casting
- Single crystal preparation
- Ingot casting with vacuum induction melting
- Casting and plasma melting
- Rolling, swaging, wire drawing, and EDM cutting
- Metallography, analytical, and characterization resources

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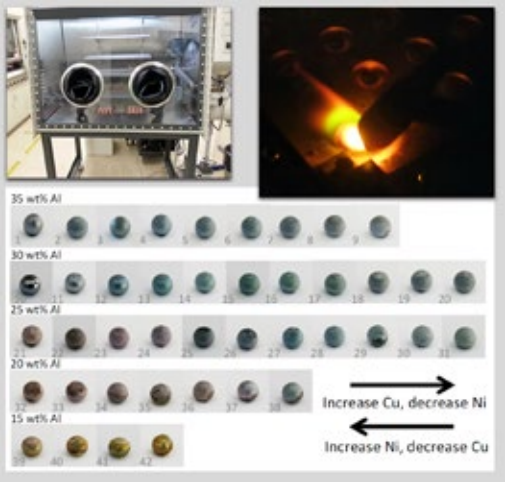
AMES LABORATORY
Creating Materials & Energy Solutions
U.S. DEPARTMENT OF ENERGY

Rapid Experimental Alloy Development

Theory-Driven Rapid Experimental Alloy Development (TD-READ) is a unique Ames Laboratory capability that integrates high-throughput bulk alloy synthesis and characterization facilities with in-house expertise for atomic- to meso-scale computational modeling. TD-READ's goal is to explore the compositional space for a particular alloy technology target rapidly—first computationally, then experimentally.

TD-READ uses a high-throughput arc melting system or a laser-engineered net-shaping (LENS) system with four discrete powder feeders to prepare numerous bulk alloy samples. Current capacity is approximately 96 samples per day, with each sample weighing 1-5 grams. Rapid results are the unique aspect of the TD-READ capability.



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