

# NASA-UVa Light Aerospace Alloy and Structure Technology Program supplement: aluminum-based materials for high speed aircraft

Langley Research Center - Creep behavior and microstructural stability of Al



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## **Creep behavior and microstructural stability of Al**

To assist in the development of a high speed civil aircraft by NASA and airframe manufacturers, the University of Virginia UVA has been examining the creep behavior of several candidate aluminum alloys. Current industry baselines focus on flight at Mach 2. The research covers four major materials systems: 1 ingot metallurgy 2XXX, 6XXX, and 8XXX alloys, 2 powder metallurgy 2XXX alloys, 3 rapidly solidified, dispersion strengthened Al-Fe-X alloys, and 4 discontinuously reinforced metal matrix composites.

### **NASA**

The objective of the research is to develop aluminum alloys and aluminum matrix composites for the airframe which can efficiently perform in the HSCT environment for periods as long as 60,000 hours certification for 120,000 hours and, at the same time, meet the cost and weight requirements for an economically viable aircraft.

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