

MATERIALS AND STRUCTURES SYMPOSIUM (C2)  
Poster Session (P)

Author: Mr. Jiao Haojun  
China Academy of Launch Vehicle Technology, China, China, jiaohaojun@yahoo.com.cn

NEW WELD FILLER WIRE AND METHOD OF RESTRAINT INTENSITY DECREASE  
CHARACTERIZATION FOR AL-LI ALLOY 2195

**Abstract**

In this article, a new sort of weld filler wire for fusion welding aluminum lithium alloy 2195 has been developed, as well as a new method of restraint intensity decrease. The aluminum-copper-silicon based weld filler wire has been identified as S406. The filler wire chemistry was developed to produce enhanced 2195 weld and repair weld mechanical properties over the 4043 aluminum-silicon or the B218 aluminum-copper weld filler wire. A characterization was performed consisting of a weld and repair weld evaluation using S406 weld filler wires and the method of restraint intensity decrease. The testing involved room temperature weld and repair weld tensile testing along with fracture toughness testing. From the testing, S406 weld filler wire and the application of restraint intensity decrease produce enhanced weld and repair weld tensile strength, ductility, and fracture properties over those of 4043 and B218 as reported.