

● Reinforcement of Aluminum Castings with Dissimilar Metals

Oak Ridge National Labs

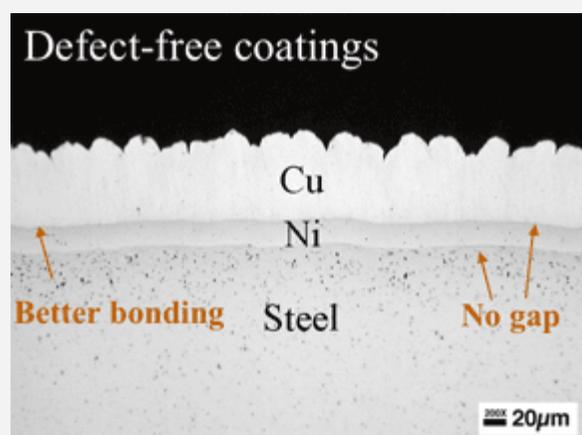
Cummins Inc.

[Q. Han](#) and [K.L. More](#)

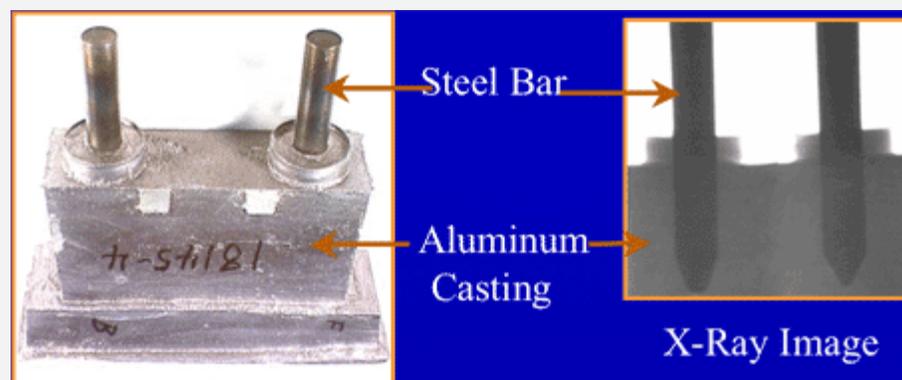
M.R. Myers, M.L. Warwick, Y.C. Chen

Goals and Objectives: Develop technologies for the reinforcement of aluminum castings with steel inserts.

Coating of the Steel Pins

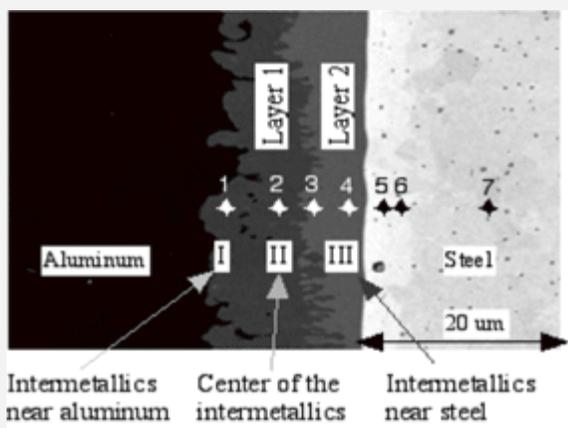
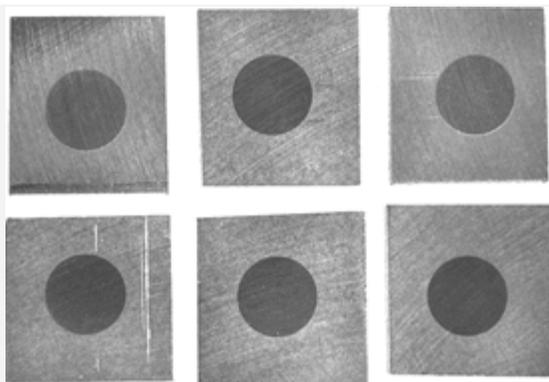


Cast-in Method



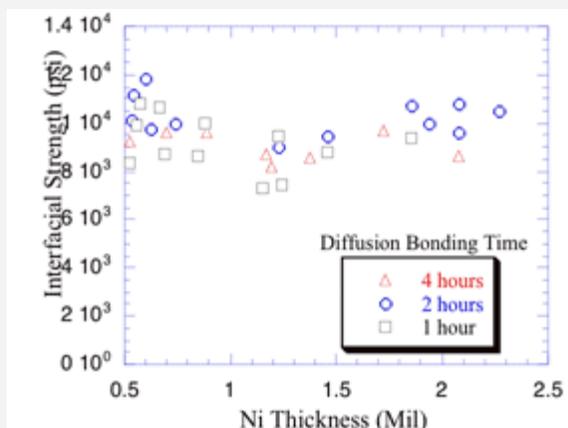
Bond Quality

Defect Free Bonding

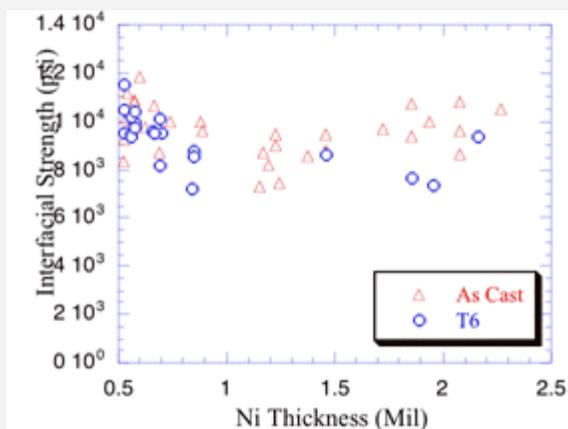


Metallurgical bond between the steel and the aluminum casting.

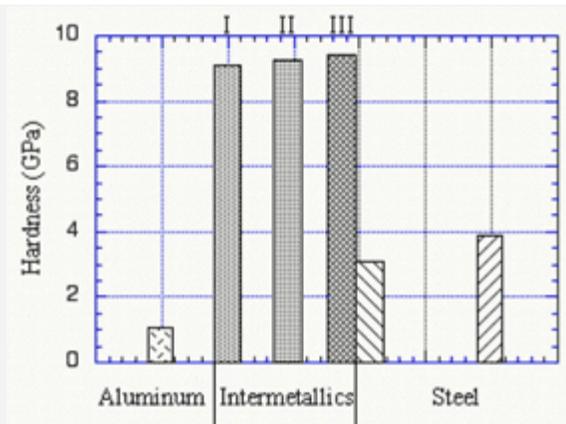
Bond Strength



As-cast Conditions



T6 Heat Treatable



Hardness of the Bond Layer

Research sponsored by the US Department of Energy, Assistant Secretary for Energy Efficiency and Renewable Energy, Office of Transportation Technology, Lightweight Vehicle Materials Program, under contract DE-AC05-00OR22725, with UT-Battelle, LLC.