Aluminum-Lithium alloy development for thixoforming

Advantages of Aluminum-Lithium alloys
• super-light weight
• increased specific strength and e-modulus
• High performance - suitable for racecar and aircraft applications

Todays Al-Li processing problems
• hot crack susceptibility
• high reactivity of Lithium with refractory material, atmospheric gases and moisture
• high scrap rate > high processing costs

Advantages of thixoforming Al-Li-alloys
• reduced liquid phase content > reduced hot crack susceptibility
• near net shape production > reduced machining costs

Requirements on thixoformable alloys
• globular primary phase < 150µm
• wide ranged solidus-liquidus interval
• rheology in semi-solid state
• low temperature sensitivity

The project in the framework of SFB 289
• design of suitable Al-Li precursor material for Semi Solid processing
• adjustment of mechanical and corrosion properties
• transferring demonstrator part know how to prototype

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