

Die-Cast Aluminum-Cerium Alloy

Disclosure Number

201703855

Technology Summary

Die-Casting accounts for approximately 80% of all aluminum parts in the automotive sector and are used across many other industries. The purpose-formulated alloy has the potential to improve mechanical properties of these parts, reduce cost, and increase demand for domestic rare earth elements (REE). The purpose-formulated alloy includes a REE coproduct that is co-located with critical materials in domestic REE mines. Increased demand for the coproduct would improve profitability of REE mining and processing operations. Additionally, compared to existing technologies, use of the alloy may result in significant cost, energy, and emissions reductions by eliminating or reducing required post-casting processing. The alloy may also have increased heat tolerance and corrosion resistance when compared to current technologies. The alloy includes REE coproducts combined with traditional aluminum alloying elements to improve mechanical properties of die-cast parts.

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