

عنوان مقاله:

The Challenges of Aluminum Recycling From End-of-Life Vehicles

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خلاصه مقاله:

The use of aluminum in automotive industry is expanding. Aluminum offers a lower weight alternative to steel, potentially increasing the efficiency of vehicles. However, the application of aluminum has been only in select areas of use, most notably cast aluminum in the engine, transmission, and wheels. Other areas offer the potential for growth that could significantly expand the amount of aluminum used in vehicles. Cost is the main barrier to increased aluminum use. Related to cost aluminum production technologies that are not yet advanced enough to produce aluminum components at low enough price points for aluminum to compete with traditional automotive materials. The amount of aluminum used in cars and light trucks is growing steadily. However, without new developments in aluminum recycling technologies, scrap from automotive aluminum could eventually flood all current markets for recycled aluminum. Environment-friendly production of automobiles is an important research subject for auto-maker companies. Production rate of automobiles increase yearly and therefore End-of-Life Vehicles (ELVs) increase. Companies who produce metallic parts have special view on ELVs as raw materials. To reach required product qualities with lowest costs, aluminum postconsumer scrap is currently recycled using strategies of downgrading and dilution, due to difficulties in refining. These strategies depend on a continuous and fast growth of the bottom reservoir of the aluminum downgrading cascade, which is formed by secondary castings, mainly used in automotive applications. With the global warming of concern, the secondary aluminum stream is becoming an even more important component of aluminum production and is attractive because of its economic and environmental benefits. Recycling of ferrous metals are easier because of separation by magnetic condition and recycling technologies. Non – ferrous metals have wide range of chemical analysis and require special technologies for separation from other metals so special look is necessary to recycling this type of metals. Effective strategies need to include an immediate and rapid penetration of dramatically improved scrap sorting technologies for end-of-life vehicles and other aluminum applications. This article concern the benefits and limitations and the challenges in direction of recycling of aluminum parts from used cars.

کلمات کلیدی:

Recycling, Secondary Aluminum, End of Life Vehicles, Automotive Recycling

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