



Recycling of Aluminum Chips by Hot Extrusion

By Volkan Güley

Shaker Verlag Jan 2014, 2014. Buch. Book Condition: Neu. 211x152x15 mm. Neuware - Recycling of aluminum chips by hot extrusion is a metal forming technique, which requires considerably less energy than conventional recycling by remelting. The aluminum chips sorted by alloy type were first chemically washed in a mid-alkaline bath and then completely dried in an industrial furnace, compacted to billets, heated up to extrusion temperature and directly extruded into finished products without remelting. This method utilizes not only significantly less energy compared to conventional recycling by remelting but also prevents the material loss that is typical in remelting of fine aluminum scrap in the form of chips. The main aim of this research was to investigate hot extrusion of aluminum chips including principles of operation, process technology and equipment, and to develop this process further by solving the encountered problems to allow its application in industry. First the effect of extrusion process parameters on the microstructure and mechanical properties of the profiles recycled from chips was investigated. It was shown that the extrusion parameters like extrusion ratio, die design and the billet temperature predominantly define the properties of the recycled profiles. The mechanism of chip welding during aluminum extrusion...



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