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Reuse of duralumin chips by means of powder metallurgy**Eng. Johanna Esguerra Arce**

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The extraction of metals has negative environmental effects, including emissions of carbon dioxide and hazardous gases, and the destruction of natural landscapes (Gaustad et al., 2012). The recycling of non-ferrous metals has a series of benefits, such as reducing the extraction of virgin minerals, thus preserving non-renewable resources. Machining is one of the processes used to manufacture engineering parts, with advantages such as good tolerances and excellent surface finishes. However, it is a process for removing material which produces waste products in the form of chips. One option for reusing these to add them to a furnace melt, but this results in hazardous smoke and increased slag generation (Grayson, 2017), and requires temperatures as high as 850°C (Puga et al., 2009). Therefore, there is an increasing interest in the reuse of waste metals (Bingbing et al., 2017). Powder metallurgical techniques are one suitable reuse option. The objective of this project was to use the duralumin chips produced in the Production Laboratory of the Julio Garavito Colombian School of Engineering to produce useful duralumin pieces. The study process included: washing, drying, grinding, microstructural and morphological characterization, compaction, sintering and finally, microstructural and mechanical characterization of the pieces, as shown in.