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Overall optimizing of automobile recycling system in Japan

System design of the whole life cycle of resources which minimizes burden on the environment reduces consumption of natural resources, and lowers social costs are current issues on policy making in the field of manufacturing and “3Rs (reduce, reuse, recycle)”. Overall optimizing of recycling system for upgrading resource efficiency is one of important technical and political topics in the world. We have run an experimental project for overall optimizing of automobile recycling system by improving dismantlement of end-of life vehicles (ELVs) in Japan, which has been funded by the Ministry of the Environment Government of Japan. In this research, glass, resin containing halogen and computer boxes have been recovered in advance in order to reduce the content of inhibitor elements in automotive shredder residue (ASR) and pressed steel scraps. Reducing the content of halogen elements (washing machine hose, weather stripping etc.) and glass (front window shield, side and rear windows etc.) in the ASR and the pressed steel scrap, it has not only reduced emission of carbon dioxide but improved profitability in total recycling processes (dismantling process, cement manufacture process and electrical furnace process). These results revealed that better practices of dismantling and sophisticated applications of scraps are expected to reduce the environmental load and upgrade resource efficiency in the recycling system of automobile. The profitability of the material manufacturer process is expected to be improved through a reduction in expenses and a slight increase in profits.

Biography

Kotaro Shimizu has completed his Master of Science degree from Waseda University, Japan in 2002. He joined UFJ Research Institute (present organization: Mitsubishi UFJ Research and Consulting), a policy institute in Japan, as an Analyst of Environment and Energy field in that year, was promoted to the Chief Analyst of the Resource and Energy field in 2010 and is working as the Section Leader of the Resource and Energy division. He has completed more than 200 reports to governmental and private organizations in the fields of Mining, Smelting, Manufacturing, Waste Management and Recycling.

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