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The recovery of the waste of the secondary glass (waste³)

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In Italy, the amount of glass waste in 2015 was 1.825.000 t, and 91% of this amount has been recycled. The remaining 9% that is to say 164.000 t in 2015 constitutes the waste of this process. SASIL S.p.A. processes this waste obtaining a product named glassy sand that is now well accepted by the glass factories. In turn from this treatment SASIL generates a 3% of waste made of all the impurities usually present in a glass waste. The problem faced in this research is the recovery of the most of these impurities. The impurities are represented by ceramics, stones, magnetic and non-magnetic metals, paper, plastics, cork, oily residues, synthetic corks, etc., which are not always easily removable. SASIL S.p.A. already built a treatment plant for the recovery of this waste but its performance is not yet satisfactory. For this reason some samples were taken from different points of the plant in order to carry out particle size analysis and product characterization to define the composition of the waste and evaluate the efficiency of industrial treatments. The present work shows that the cullet waste material of scrap glass recovery treatments (waste³) is composed of exploitable product fractions with different particle sizes and physical (such as density, shape and resistance) properties. In the next step, laboratory tests were executed to achieve maximum separation efficiency and to valorize the different product fractions. On the base of laboratory results, a new treatment plant was designed and economic evaluations have been made. The materials to be traded as secondary raw materials (SRM) are about 87.5% of the total entering the plant and result to be glass, plastic lightweight, ferrous metals, non-ferrous metals, synthetic stoppers and cork stoppers.



Biography

Paola Marini is an Assistant Professor at the Politecnico di Torino with a PhD in Environmental Geo-Engineering. She has her expertise in Raw Material Characterization and Treatment Process. Her research concerns the physical-mechanical tests of the stone material, the durability of ornamental rocks; recognition and restoration of stone materials, protected designation of origin of the stones, mineral processing, identification of minerals and asbestos in particular, and the processes of recovery of secondary raw materials. Investigations are carried out on the stone materials and aggregates, magnetic separation tests in fluid medium, gravimetric, comminution, etc., and analysis for the recognition of asbestos fibers in MCA, soil and rock.

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