

**Title:** Physical-chemical and mineralogical characterization of fine aggregates from construction and demolition waste recycling plants

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**Abstract:** Construction and demolition waste (CDW) represents around 31% of all waste produced in the European Union. It is today acknowledged that the consumption of raw materials in the construction industry is a non-sustainable activity. It is thus necessary to reduce this consumption, and the volume of CDW dumped, by using this waste as a source of raw materials for the production of recycled aggregates. One potential use of these aggregates is their incorporation in reinforced concrete as a replacement of natural aggregates. A concrete that incorporates these aggregates and still performs well requires them to be fully characterized so that their behaviour within the concrete can be predicted. Coarse recycled aggregates have been studied quite thoroughly, because they are simpler to reintroduce in the market as a by-product, and so has the performance of concrete made with them. This paper describes the main results of research designed to characterize the physical and chemical properties of fine recycled aggregates for concrete production and their relationship with mineralogical composition and preprocessing. The constraints of the incorporation of fine aggregates in reinforced concrete are discussed. It is shown that, unless a developed processing diagram is used, this application is not feasible. (C) 2013 Elsevier Ltd. All rights reserved.

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