

## Upscaled use of CDW as recycled aggregates in the national industrial context

### Summary

Construction and Demolition Waste (CDW) contains significant amounts of inert materials, whose properties have been studied and for which good characteristics for use as aggregates have already been recognized, despite the understandable differences from natural aggregates (NA). These wastes must be exploited to minimize, as much as possible, the use of natural resources and its disposal in landfills. In this way, the environmental gains are evident, in addition to the fact that, with the continued exploitation of natural aggregates, these begin to become scarce near urban areas. An area where the civil construction activity has a greater incidence, so they begin to become more expensive due to the increase in transport costs. The present work aim to carry out the upscale of the use of CDW as recycled aggregates (RA) in concretes. Mainly on the applicability and feasibility of compositions and methodologies for the industrial use of these materials.

Initially, several studies and estimation analyzes of possible workflow structures will be carried out, that is, structuring of the mechanisms that local industries can exercise as a way to make such applicability financially viable. Then, in each of the steps to be defined in the previous item, surveys of all industrial-technological procedures will be carried out for the elaboration of the methodological program to be replicated at the laboratory level. A detailed study of the CDW behaviors as RA will be essential, and the consequent adaptation of the constraints of the aggregates and/or the insertion of other materials and products to improve the expected characteristics. Once the laboratory experimental part is finished, the dosages and other determinations resulting from the laboratory study are applied to the industries. This will be achieved through the practical implementation of these mixtures on an industrial scale and subsequent technological control of the products derived from them.

Thus, having as a main output the supply of workflow forms and compositions/forms of incorporation that prove to be truly applicable to the concrete industry, through its existing structure on the physical, mechanical, thermal and durability level. These determinations will turn it possible to reuse a large-scale waste, and adding to the reduction in the extraction of natural aggregates, they will result in a huge impact on environmental preservation, both physical and the gases generated in their extraction, processing, and transport processes.

### Keywords

Sustainability, sustainable construction, construction and demolition waste, concrete, recycled aggregates.



Samples of construction and demolition waste as coarse recycled aggregate.



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