

## Quality Assessment and Classification of Recycled Aggregates from CandDW According to the European Standards

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**Abstract :** The intensive extraction of natural aggregates leads to both depletion of natural resources and unwanted environmental impacts. On the other hand, uncontrolled disposal of Construction and Demolition Wastes (C&DW) causes the lifetime reduction of landfills. It is known that the European Union produces, each year, about 850 million tons of C&DW. For all the member States of the European Union, one of the milestones to be reached by 2020, according to the Resource Efficiency Roadmap (COM (2011) 571) of the European Commission, is to recycle 70% of the C&DW. In this work, properties of different types of recycled C&DW aggregates and natural aggregates were compared. Assays were performed according to European Standards (EN 13285; EN 13242+A1; EN 12457-4; EN 12620; EN 13139) for the characterization of there: physical, mechanical and chemical properties. Not standardized tests such as water absorption over time, mass stability and post compaction sieve analysis were also carried out. The tested recycled C&DW aggregates were classified according to the requirements of the European Standards regarding there potential use in concrete, mortar, unbound layers of road pavements and embankments. The results of the physical and mechanical properties of recycled C&DW aggregates indicated, in general, lower quality properties when compared to natural aggregates, particularly, for concrete preparation and unbound layers of road pavements. The results of the chemical properties attested that the C&DW aggregates constitute no environmental risk. It was concluded that recycled aggregates produced from C&DW have the potential to be used in many applications.

**Keywords :** recycled aggregate, sustainability, aggregate properties, European Standard Classification

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