

Managing Construction and Demolition Wastes - A Case Study of Multi Triagem, Lda

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Abstract : Construction industry generates large amounts of waste all over the world. About 450 million tons of construction and demolition wastes (C&DW) are produced annually in the European Union. C&DW are highly heterogeneous materials in size and composition, which imposes strong difficulties on their management. Directive n.º 2008/98/CE, of the European Parliament and of the Council of 6 November establishes that 70 % of the C&DW have to be recycled by 2020. To evaluate possible applications of these materials, a detailed physical, chemical and environmental characterization is necessary. Multi Triagem, Lda. is a company located in Algarve (Portugal) and was supported by the European Regional Development Fund (grant QREN 30307 Multivalor) to quantify and characterize the received C&DW, in order to evaluate their possible applications. This evaluation, performed in collaboration with the University of Algarve, involves a physical, chemical and environmental detailed characterization of the received C&DW. In this work we report on the amounts, trial procedures and properties of the C&DW received over a period of fifteen month. In this period the company received C&DW coming from 393 different origins. The total amount was 32.458 tons, mostly mixtures containing concrete, masonry/mortar and soil/rock. Most of C&DW came from demodulation constructions and diggings. The organic/inert component, namely metal, glass, wood and plastics, were screened first and account for about 3 % of the received materials. The remaining materials were screened and grouped according to their origin and contents, the latter evaluated by visual inspection. Twenty five samples were prepared and submitted to a detailed physical, chemical and environmental analysis. The C&DW aggregates show lower quality properties than natural aggregates for concrete preparation and unbound layers of road pavements. However, chemical analyzes indicated that most samples are environmentally safe. A continuous monitoring of the presence of heavy metals and organic compounds is needed in order to perform a proper screening of the C&DW. C&DW aggregates provide a good alternative to natural aggregates.

Keywords : construction and demolition wastes, waste classification, waste composition, waste screening

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