

WEACAU-III:
Workshop on Environmental Aspects of Coal Ash Uses
Complementary Session
Volcani Center ARO, Bet Dagan, Israel
May 13th 2013

European developments in standardisation of leaching tests and their use in regulations dealing with Hazardous waste classification, End of Waste and beneficial use under the Construction Products Regulation

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Abstract

The realization of the limitations of single step leaching tests to assess release of substances from beneficially used former waste materials is growing worldwide. In Europe and in the USA this has led to the implementation of characterisation leaching tests, which have now been validated and are in the process of being transformed into official standards. Since the limited set of characterisation tests (pH dependence, percolation, monolith leaching, redox capacity, modelling parameters and acid production from sulphide oxidation) encompass a very wide range of conceivable exposure conditions for almost any type of material or product, these methods are discussed in Europe in relation to a range of regulatory requirements.

This concerns the classification of residues from thermal processes as hazardous or non-hazardous waste in the context of the proposed amendments to Waste Framework Directive (Directive 2008/98/EC and Commission Decision 2000/532/EC) as well as the replacement in 2008 of the regulation dealing with Classification, packaging and labelling of dangerous substances and mixtures (CLP; Directives 67/548/EEC and 1999/45/EC by Regulation (EC) No 1272 of the European Parliament and of the Council of 16 December 2008). The regulation is largely based on content and has serious limitations for materials, where the chemical compounds it contains cannot be specified easily. Leaching and chemical speciation has been proposed to eliminate this limitation for thermal residues.

Another is the Waste Framework Directive (WFD) 2008/98/EF which introduces the option to set so-called End-of-Waste (EoW) criteria under which specified waste fractions shall cease to be waste. If these criteria are fulfilled, the material will no longer be classified as a waste but rather become a product subject to free trade and use (albeit for specific purposes). According to Article 6 (1) of the WFD, a waste material (substance or object) may cease to be waste as defined in the WFD when it has undergone a recovery, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:

- a) the material is commonly used for specific purposes;
- b) a market or demand exists for such a material;
- c) the material fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products;
- d) the use of the material will not lead to adverse environmental or human health impacts.

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The criteria shall include limit values for inorganic or organic substances where necessary and shall take into account any possible environmental effects of the material. Single step testing is clearly insufficient to address this question and the above mentioned leaching tests have been proposed in combination with a tiered approach in case prior knowledge is available to resolve the question, whether environmental issues may arise, when the material is used without restrictions.

A third important use of the above mentioned methods is in the Construction Product Directive (Council Directive 89/106/EEC) and the Construction Products Regulation (Council Directive 305/2011), which forms the basis for CE marking of products. Following the previously adopted harmonised standards containing technical specifications, additional procedures shall be developed according to the “Essential requirement nr. 3 on Health and Environment”. For that purpose the European Commission issued the mandate M/366 EN “Development of horizontal standardised assessment methods for harmonised approaches relating to dangerous substances under the construction products directive (CPD) – Emission to indoor air, soil, surface water and ground water”.

This has resulted so far in draft test methods for assessment of impacts on soil, surface and groundwater, which are being worked out by CEN/TC351. The CPR will officially replace the CPD by July 2013. An important change with respect to the CPD is that not only service life but also recycling and End-of-life considerations need to be addressed under the CPR. The burden of testing can be reduced by making use of existing information or generate information to demonstrate compliance with existing regulation though so-called FT (further testing) and WFT (without further testing) classification. Dossiers per product group are being drafted to opt for WFT status, when appropriate. Coal fly ash use in concrete is one of the beneficial uses of coal ash, which is incorporated in the Dossier developed for the European Concrete Platform (ECP) to be submitted to the European Commission and/or CEN for applying a WFT procedure on concrete.