Electrochemical treatment of wood combustion fly ash for the removal of cadmium - DTU Orbit (18/10/2019)

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Due to a high content of macronutrients and a potential liming capacity, recycling of ashes from biomass combustion to agricultural fields as fertilisers and/or for soil improvement is considered in Denmark and other countries utilising biomass as an energy source. However, especially the fly ash fractions contain amounts of the toxic heavy metal Cd that may exceed the limiting values for agricultural utilisation given by the Danish EPA. In this work the advances of using an electrochemical remediation method to reduce the Cd content in wood combustion fly ash - for the aim of recycling - is described. The method, which is named electrodialytic remediation, uses a low voltage direct current a cleaning agent. Under optimised remediation conditions with the fly ash suspended in a 0.25 M ammonium citrate mixture, more than 70 % of the initial Cd was removed from the wood fly ash using electrodialytic remediation.

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