Electrodialytic removal of Cd from biomass combustion fly ash suspensions - DTU Orbit (19/10/2019)

**Electrodialytic removal of Cd from biomass combustion fly ash suspensions**

Due to relatively high concentrations of Cd, biomass combustion fly ashes often fail to meet Danish legislative requirements for recycling as fertilizer. In this study, the potential of using electrodialytic remediation for removal of Cd from four different biomass combustion fly ashes was investigated with the aim of enabling reuse of the ashes. The ashes originated from combustion of straw (two ashes), wood chips, and co-firing of wood pellets and fuel oil, respectively. A series of laboratory scale electrodialytic remediation experiments were conducted with each ash. The initial Cd concentration in the ashes varied between 8.8 mg Cd/kg (co-firing ash) and 64. mg Cd/kg (pre-washed straw ash), and pH varied from 3.7 (co-firing ash) to 13.3 (wood ash). In spite of such large variations between the ashes, the electrodialytic method showed to be sufficiently robust to treat the ashes so the final Cd concentration was below 2.0 mg Cd/kg DM in at least one experiment done with each ash. This was obtained within 2 weeks of remediation and at liquid to solid (L/S) ratios of L/S 16 for the pre-washed straw ash and L/S 8 for the straw, co-firing and wood ash. © 2013 Elsevier B.V.

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