Management of Municipal Water Waste Treatment Plants Potential by-Products of Sewage Sludge Ash type, as Active or non-Active Additions to Portland Cement-based Binders

Fact Sheet

Project Information

<table>
<thead>
<tr>
<th>Sewage Sludge in PC</th>
<th>Funded under H2020-EU.1.3.2.</th>
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</thead>
<tbody>
<tr>
<td>Grant agreement ID: 746830</td>
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<td>Start date 1 March 2017</td>
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<td>End date 28 February 2019</td>
<td>Coordinated by CENTRUM BADAN I INNOWACJI PRO-AKADEMIA STOWARZYSZENIE Poland</td>
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</tbody>
</table>

Objective

The main objective of the proposal is to design a flow chart for the valorisation process of sewage sludge (SS) waste stream from municipal water treatment plant origin, (code 19 08 05, in accord with 2014/955/EU Decision), and its subsequent use as supplementary cementitious material (SCM). The End-of-Waste (EoW) criteria is applied, in the first stage, by assessing of the potential organic and inorganic hazardous constituents content and manner of their removal or inertization (by optimized incineration process, mainly). Secondly, in order to generate a final SS ash (SSA) by-product of constant physical-chemical properties, apt to be used as a SCM, an adequate analysis of its main chemical
properties, apt to be used as a SCM, an adequate analysis of its main chemical components (SiO2, Al2O3, Fe2O3) is provided, according to EN and ASTM requirements and testing to quality standards, with a special consideration of eventual pozzolanic activity. Once the classification of thus obtained SCM is carried out as active or non-active addition, its performance in the Portland cement (PC) based binders is studied. The manufacturing of new PC/SSA cements and its resultant products, concretes and mortars, is focused from the following principle perspectives: mechanical compressive and flexural strength efficiency, volume soundness and chemical durability in front of chemical aggressive media like sulfates, chlorides, sea water action, etc. Finally, an impact assessment of the proposed EoW procedure is evaluated taking into account its legal, economic, market, social and environmental aspects.

The current proposal seeks to address regional work programme of sustainable energy development in Central Poland by putting forward an idea of the local residual materials management, once converted into by-products, to manufacture concretes and mortars in the same conditions and with identical constructive uses that PC ordinary concretes and mortars, nowadays, dictated by environmental and economic questions, principally, in the most of industrialized EU countries.

Field of science
/social sciences/economics and business/business and management/commerce
/engineering and technology/environmental engineering/energy and fuels/renewable energy

Programme(s)

Topic(s)

Call for proposal
H2020-MSCA-IF-2016

Funding Scheme
MSCA-IF-EF-CAR - CAR – Career Restart panel

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Research Organisations

EU contribution
€ 134 462,40

Contact the organisation

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