Transformation of WtE ash residue into sustainable aggregates

Rogier van de Weijer
Business Development Director
Ash: A sustainable source of raw materials

VISION:
All raw materials should be brought back into the Circular Economy

MISSION: To be partner of choice for the WtE Industry
• Inashco has the knowledge and experience to serve the industry with the transformation of ash residue
• Create fit for purpose aggregates for country specific market demand
Offering: Dé-risking the WtE Industry

- Historically Inashco’s focus: fine non ferrous metals
- 2016: Inashco group one-stop-shop solution provider
  - Sustainable ash solution is “license to operate” for the industry
    - Dé-risking the Industry by long term guaranteed off take
    - Sustainable utilization of ash residue
The Dutch approach sets the pace in the market……

► Inashco group

• 28 production sites; Europe, North America, Singapore
• Processing 5 Million ton WtE ash annually
International markets - Tailor made solutions

Application of aggregate product dictates technology choice driven by country specific geological conditions

► Netherlands: Green Deal compliance as of 1st Jan 2017
  • Single soil condition & ground water nature; Soil Quality Degree
  • Need for extensive ash processing to create sustainable aggregates

► United Kingdom: IBAA utilization common practice
  • **Ballast Phoenix**: Hydro Geologic Condition Assessment

► Europe
  • Landfill / salt mine stabilization / road construction / noise barriers

► United States
  • Landfill / mono fill
International markets - Tailor made solutions (2)

► Nature of the Ash
  • Bottom ash only / Bottom ash + Boiler ash / Bottom ash + Boiler ash + fly ash
  • Moisture content (wet deslagging / semi dry deslagging)
  • Amount of unburned material
  • Pollutants like Chlorides, Sulphates and Antimony

► Requirements for IBAA utilization
  • Landfill quality standards
  • Partial re-use in concrete products (non reinforced)
  • Full re-use in controlled ground conditions
  • Full re-use under Dutch “Green Deal” parameters
eQuiAsh – Semi Dry Method

Urbanite ® - Developed with AEB Amsterdam
• Based on patented technologies TAUW

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<tr>
<th>Solution</th>
<th>eQui Ash - Semi Dry Method</th>
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<td><strong>Aggregate recovery</strong></td>
<td>Goal</td>
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<tr>
<td>Copper</td>
<td>Decrease organic content</td>
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<td>Antimony</td>
<td>Binding</td>
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<td>Sulphates</td>
<td>Removal</td>
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<td>Chlorides / Bromides</td>
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<tr>
<td>&gt;12 mm</td>
<td>Recovery NFc + Fe</td>
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<td>1 - 12 mm</td>
<td>Recovery NFc</td>
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<td>40μm - 1mm</td>
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Full Wet Solution

Full wet solution - Developed with Boskalis
• Based on patented technology Boskalis

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<td>Structural removal of organic</td>
<td>Fluf removal by density separation</td>
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<td>Antimony</td>
<td>Structural removal</td>
<td>Scrub off Ettringite</td>
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<td>Structural removal of Gypsum</td>
<td>Log washers</td>
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Aggregate applications
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