Co-firing RDF in coal power plant

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Workshop on Agriculture Waste Incineration
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Tel Aviv
Technical and Legal Aspects of Thermal Treatment of Waste

Co-firing RDF in coal power plant

I. Introduction
II. Co-firing Processes
III. Examples for the different process types
IV. An evaluation approach
V. Conclusion
Technical and Legal Aspects of Thermal Treatment of Waste

Waste Management in Germany

Data 2011

- 69 WtE – 19.5 Mio. t/year cap.
- 70 MBWTP – 7 Mio. t/year cap. →
  - 3 Mio. tons RDF for Co-incineration (power plants, cement kilns) and 5 Mio. tons RDF for 29 RDF-incineration plants
- 30 Hazardous waste incineration plants (1.4 Mio. tons/year)
- Sewage sludge: 23 incineration plants and co-incineration (1.2 Mio. tons/year)
- Clinical waste: Co-incineration in WtE-plants and HazW-Incineration plants
- 160 Biomass/Waste-wood incineration plants

Source: Länderarbeitsgemeinschaft Abfall (LAGA), report dated 25 March 2004
### Technical and Legal Aspects of Thermal Treatment of Waste

<table>
<thead>
<tr>
<th>Process</th>
<th>el.</th>
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<tbody>
<tr>
<td>municipal waste incineration</td>
<td>6.000</td>
<td>17.000</td>
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<tr>
<td>RDF-power plants</td>
<td>1.000</td>
<td>2.500</td>
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<tr>
<td>co-incineration (power plants)</td>
<td>2.800</td>
<td>610</td>
</tr>
<tr>
<td>incineration of hazardous waste</td>
<td>460</td>
<td>1.360</td>
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<tr>
<td>sewage sludge mono-incinerization</td>
<td>140</td>
<td>370</td>
</tr>
<tr>
<td>waste wood incineration</td>
<td>6.000</td>
<td>3.700</td>
</tr>
<tr>
<td>landfill and sewage gas using</td>
<td>2.000</td>
<td>2.000</td>
</tr>
<tr>
<td>biogas plants (50 %)</td>
<td>3.750</td>
<td>1.600</td>
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**sum**

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<td>22.150</td>
<td>29.140</td>
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**energy consumption in Germany**

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<tr>
<td>615.000</td>
<td>1.367.000</td>
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**WtE-contribution**

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<tr>
<td>22.150</td>
<td>3,6 % of the consumption el.</td>
</tr>
<tr>
<td>29.140</td>
<td>2,2 % of the consumption th.</td>
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**Electricity and heat from waste - a summary 2010**
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Co-firing RDF in coal power plant – firing diagram

Source: VDI 3460
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Co-firing RDF in coal power plant


Implemented by the EU-member States by January 2013.

The role of **BAT (Best Available Techniques)** is strengthened

Annex VI of the IED contains emission limits for power plant co-incinerating waste in connecting to the “mixing-rule”

By applying strict rules the IED strengthens the role of industrial co-incineration (co-processing)
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- Sewage sludge
- Raw lignite coal
- Lignite coal dust
- Lime stone
- Waste wood/RDF
- Raw lignite coal