Features

NSE’s Direct Melting System (DMS) is an alternative to conventional Waste to Energy facility.

1. **Maximizing Energy Recovery**
   - Highly efficient plants

2. **Maximizing Material Recovery (=Minimizing Final Landfill Amount)**
   - High-quality slag and metal are stably produced

Basic Concept or Summary

I. **Sustainability**
   1) **Energy Recovery**
      - Power generation is the most important issue in Waste to Energy plants. NSE has developed highly efficient plants in Japan.
   2) **Material Recovery (Slag and Metal)**
      - High-temperature gasification produces high-quality slag and metal. The produced slag has almost the same quality as natural sand. Recycling 100% of produced Slag and metal contributes to the minimization of the final landfill residuals taken to.

<table>
<thead>
<tr>
<th>Slag (Example)</th>
<th>Natural Sand (Example)</th>
<th>Japanese Standard limited value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb(lead) mg/kg</td>
<td>5-20 mg/kg</td>
<td>&lt; 150 mg/kg</td>
</tr>
<tr>
<td>Arsenic mg/kg</td>
<td>&lt; 0.5 mg/kg</td>
<td>&lt; 150 mg/kg</td>
</tr>
<tr>
<td>Cd mg/kg</td>
<td>&lt; 0.1 mg/kg</td>
<td>&lt; 150 mg/kg</td>
</tr>
<tr>
<td>T-Hg mg/kg</td>
<td>&lt; 0.06 mg/kg</td>
<td>&lt; 15 mg/kg</td>
</tr>
<tr>
<td>Chromium mg/kg</td>
<td>&lt; 1 mg/kg</td>
<td>&lt; 250 mg/kg</td>
</tr>
<tr>
<td>Selenium mg/kg</td>
<td>&lt; 0.2 mg/kg</td>
<td>&lt; 150 mg/kg</td>
</tr>
</tbody>
</table>

II. **Stability**
   1) Able to process a variety of waste

III. **Purity**
   1) Low Dioxins Emissions
   2) Less HCl and SO2 Emissions

IV. **Reliability**
   1) More than 34 years operation & maintenance
   2) 42 commercial references
I. Power Energy Efficiency
NSE has developed highly efficient plants in Japan.

![Graph showing power generation efficiency vs. capacity](image)

II. Waste Processing Capacity and Slag Utilization Amount
All amounts of slag produced is utilized.

### Installation in Practice or Schedule

**Domestic**
- The world’s highest number of facilities (42 orders) (40 plants in Japan)
- The world’s most long-term operation (34 years)

[Shin-moji plant – the world’s largest gasification plant]

- **Completion**: April 2007
- **Capacity**: 10 t/h X 3 lines (230,000 t/annual ≈ 720 t/day)
- **Processing Waste**: Municipal Solid Waste, Incombustibles, Sewage sludge
- **Power Generation**: 23.5 MW Gross

**Overseas**
- 2 plants in South Korea
  - **[Yangsan plant]** Capacity : 8.4 t/h X 2 lines  Start of operation : 2008
  - **[Goyang plant]** Capacity : 12.6 t/h X 2 lines  Start of operation : 2010

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