Study Regarding the Evolution of Solid Waste Generation During Steelmaking

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SUMMARY

This paper describes problems regarding the evolution of solid wastes generated during steelmaking in the electric arc furnace. These solid wastes are slags and dusts. Approximately 1–2% of the charge is converted into dust and 10 – 15% is converted into slag (Erdem et al., 2005). Nearly 12 million tons of steel slag is produced annually in the Europe. In the table 1 is presented the evolution of crude steel production in worldwide. In Fig. 1 are shown minimum and maximum quantities of solid waste from steelmaking.

Tab.1

<table>
<thead>
<tr>
<th>Steel production in Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romania</td>
<td>6.3</td>
<td>5.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Europe</td>
<td>364.5</td>
<td>344.1</td>
<td>265.8</td>
</tr>
<tr>
<td>Worldwide</td>
<td>1345.8</td>
<td>1326.5</td>
<td>1219.7</td>
</tr>
</tbody>
</table>

Fig.1. Solid waste from steelmaking

The solid waste quantity and chemical composition varies according to the quality of the charge and the type of steel elaborated (Iluțiu – Varvara, 2007).

This dust is considered as a toxic waste due to its content of heavy metals. It is estimated that the world-wide total production of EAF dust could be as high as several million tones, all of which must be treated, recycled or land-filled (Sofilic et al., 2004).

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