TTV Thöni High Solids Anaerobic Digestion
Sinsheim (Germany)

Principal and operator
AVR Bio Terra GmbH & Co. KG

Plant data
Initial operation: 2019
Input: minimum 60,000 t/a of biowaste & 5,000 t/a of green waste
Digester: TTV2250 (2x)
Plant and procedures

The waste processing starts with the delivery of the biowaste from the administrative district of Rhein-Neckar (Rhein-Neckar-Kreis), which is – with 54 cities and municipalities and 535,000 inhabitants – the administrative district with the highest population in Baden-Württemberg. In the receiving hall, waste is shredded and sieved. Subsequently, the organic fraction is temporarily stored in a flat bunker. The fully automatic treatment of the processed organic waste for the partial-stream digestion starts here, by feeding it to the digestion stage using an automatic crane system.

The digesters are fed in via external mixers, in which the biowaste is homogenized accordingly. Subsequently, the substrate is continually fed with piston pumps via heat exchangers into the digesters.

The digestion of the substrate takes place in a plug flow double digester (2 x TTV2250 m³). Thereby, the input material is fed through the digester by means of a “plug” – supported by a slowly rotating agitator – at a temperature of 55°C (thermophilic). The special design of the rotating shaft steadily prevents the formation of sediment and floating layers and supports a high and uniform gas yield.

After the digestion, the digestate is mixed with the oversize residue, conditioned and processed to high-quality compost in tunnel filling halls. The raw biogas produced in the digesters is processed and refined to biomethane natural gas quality in an upgrading plant and fed into the public natural gas grid.

A showcase project for an ecological resource cycle: The whole biowaste of the administrative district of Rhein-Neckar (Rhein-Neckar-Kreis) will be energetically and materially recycled in the future. The households in the surroundings benefit on several occasions: they generate bioenergy and valuable quality compost from their own biowaste. The special plant concept, including the existing infrastructure and the use of synergies at the site, enables operation of the plant free from waste water.

Performance data

<table>
<thead>
<tr>
<th>Input:</th>
<th>min. 60,000 t/a of organic waste bin &amp; 5,000 t of green waste</th>
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<tbody>
<tr>
<td>Output:</td>
<td>25,000 t/a of high-quality compost (quality assured)</td>
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<td>Raw biogas:</td>
<td>approx. 35 - 40 GWh/a</td>
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