

Selected BTA References

Mülheim a. d. Ruhr



Client: MEG
Mülheimer Entsorgungsgesellschaft mbH
Pilgerstraße 25, 45473 Mülheim a.d.Ruhr
Germany

Capacity: 22,000 ton/year

Start up: 2003

Materials processed:

- Source segregated biowaste with garden waste
- Commercial waste from supermarkets, food processors etc.
- Liquid materials, restaurant and catering waste, grease trap removals, sludge.

Process:

- BTA Process with one-stage digestion

Plant description:

- Waste reception
- Hydromechanical pre-treatment
- Anaerobic digestion of organic waste
- Sanitation
- Digestate treatment
- Biogas utilization

More Information
Fon +49 8441 8086-600
www.bta-international.de

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Description

Waste reception

By passing a vehicle scale, the delivered waste is registered and transferred in to the receiving hall; it is temporarily stored in a deep bunker area before being transferred by a walking floor system into a screw mill which chops the material roughly. By conveyor belt the waste then passes an overhead magnetic separator and is finally fed into two BTA Waste Pulpers. Food waste is collected in a separate underground tank and transported directly to a pulper via a screw conveyor.

Hydromechanical pre-treatment

After being screw milled, the waste is fed into two BTA Waste Pulpers and mixed with process water. Liquid waste will be pumped directly to the pulpers. From the organic component in this waste, a homogenous, pumpable suspension is produced which can be easily handled and digested. Unwanted waste constituents (such as plastics, textiles, stones, metals etc.) are efficiently and gently removed by means of a heavy fraction trap at the bottom of the pulpers and by a rake (light fraction).

Any remaining fine inerts (sand, grit, glass etc.) are removed from the pulp with a grit removal system, installed to prevent settling and the wearing of downstream plant components, and to improve the quality of the digestate.

Anaerobic digestion

The resulting suspension is effectively free from impurities and contains the dissolved or defibrated organic components. It is therefore easily and directly fed into a fully mixed 3,400m³ digester for methanization (gas mixing system). The retention time is about 18 days.

Hygienization

One of the two BTA Waste Pulpers is insulated so that any material requiring sanitization can be heated up to 70°C and held for a minimum of 1 hour.

Digestate treatment

After dewatering, the solid waste is aerobically treated in an external composting plant for 1-3 weeks. The compost is certified and of high merchandisable quality. Most of the liquid waste will be reused as process water. The remaining water is treated in a SBR reactor (nitrification/denitrification) before it is discharged into the sewer.

Gas utilization

The generated biogas is used in two CHPs with a total electrical capacity of 622 kW. The thermal and electrical energy produced in this way is used for the AD plant and for the associated service centre. Surplus electricity is fed into the national grid and sold to the local energy supplier.

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