

The WER unit

The Waste energy recycling unit - the WER unit - represents a turn-key solution for your waste streams. This easy-to-install, and easy-to operate unit can be run continuously for 24 hours, with max. 10 hours/day feeding waste.

The WER allows for two waste utilisation routes:

1. Plastic to oil - producing oil from plastic by means of chemical recycling when large quantities of plastics are available. The goal is to use the oil for manufacturing of new plastic products.
2. Waste to energy - for a broad range of waste streams, producing fuel and gas for heat or electricity. The goal is to use it for parasitic load and local grid.

Input requirements

1. Plastic to oil (min. 8750 t/y)

Acceptable waste in general terms:

- Pure PP, PE, PS
- Diluted oxygen-based polymers (PET), nitrogen-based polymers (PDMS), sulfur-based polymers (rubber)
- Diluted hydrocarbons (affecting efficiency)

2. Waste to energy (min. 1700 t/y)

Acceptable waste:

A random mix of:

- Biomass
- Plastics of any kind
- PVC (max. 0,5 wt%)
- Municipal Solid Waste
- RDF

3. For both Plastic to oil and Waste to energy

Unacceptable waste:

- Traces of halogens (<0.005wt%)
- Streams containing radioactive, poisonous, drugs or explosive waste
- Big parts of metal, glass or inert materials larger than 1 cm
- Bricks with dimensions larger than 1 cm

(However, small parts can be present in occasional quantities, though reducing the efficiency)

Operational requirements

- 250-1250 kg/hr of waste to energy input and for Plastic to oil
- Exterior temperature between -10°C and +45°C

- Water connection (possibly waste water, no drinking water needed)
- 400 VAC 128A electricity connection

WER characteristics

- the system is skid based for quick deployment
- avoids pre- and post-treatment technologies. however, some separation is preferable to allow for the output product of the better quality and to avoid the unit's malfunctions
- applies pyrolysis - thermal decomposition process at high temperature without the presence of oxygen – allows to convert plastics into smaller hydrocarbons.
- output products can be used for different purposes: electricity can be used for parasitic load and to support the local grid. The heat can be used for city heating or cooling, its volumes are dependent of the calorific value and type of waste. The gas composition depends on the type of waste as well. Based on a gas analysis, choices can be made regarding its further application. The oil output is a substitute for virgin crude oil.
- provides an option for the treatment of specific waste, e.g. category 2 and 3 of medical waste

Unit sizes

Small WER up to 1750 tonnes/ year – only for Waste to Energy purposes

Large WER 3500-8750 tonnes/year – is designed for Plastic to oil purposes and also can be used for Waste to energy purposes.

For more detailed questions contact us by email: info@waste4me.