PRODUCT DATASHEET

Plastic-to-Liquid and Hydrothermal Liquefaction Pilot Plant

Pilot units for pyrolysis of waste plastics and hydrothermal liquefaction of biomass

Product page





Close-up: feed extruder and condenser train

OVERVIEW

The Tech Inc. Plastic-to-Liquid and Hydrothermal Liquefaction Pilot Plant tests the circular-fuel routes that refineries and waste companies are now evaluating. In the plastic-to-liquid version, shredded plastic is melted and cracked in a heated reactor and the vapours are condensed into oil, wax and gas; in the hydrothermal-liquefaction version, a wet biomass or sludge slurry is pumped through a reactor at high pressure and temperature, where it turns into a bio-crude that separates from water.

TYPICAL DESIGN DATA

Pyrolysis temperature	About 400 to 550 °C
HTL conditions	About 300 to 350 °C and 150 to 250 bar
Feed	About 1 to 20 kg/h
Codes and standards	Pressure parts to ASME B31.3 and ASME VIII; electrical to IEC 60079 where classified
Materials	316 stainless; Alloy 625 or 800 for hot sections
Products	Oil and wax fractions, gas, char or aqueous phase
Safety	Gas detection, pressure relief, inert purge and safe shut-down

MODELS AND CAPACITIES

- **TI-PTL-1** – about 1 kg/h
- **TI-PTL-5** – about 5 kg/h
- **TI-PTL-20** – about 20 kg/h
- **TI-PTL-HTL** – HTL unit, about 1 to 10 kg/h slurry

Indicative feed rate.

ORDERING CODE

Example **TI-PTL-5-P-C**: **5** feed rate, kg/h; **P** process: P pyrolysis, H HTL; **C** options: C catalytic bed, N none.

SCOPE OF SUPPLY

Included: factory acceptance test with a written report; drawings for approval, material certificates and manual. **Options:** catalytic upgrading bed; online gas analysis; char handling; commissioning on site.

KEY ADVANTAGES

- **Two routes** – pyrolysis or HTL
- **Fractions** – oil, wax and gas separated
- **Mass balance** – every stream measured
- **Safe** – inert purge and relief

Designed and built by Tech Inc. · **Part of the Davey Group since 1990**

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