



ENVIRONMENTAL CONCEPTS EXCHANGE ASSOCIATION

Conversion of Mixed Plastic Wastes to Oil and/or Electricity



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Waste to Energy

Both companies are devoted forerunners in the „waste to energy” sector, combined forces in 2011 to utilize the TCC-4000 technology internationally

The technology was designed by Power Energy, controlled and partly financed by the Hungarian Electricity Corporation

3 TCC-4000 projects permitted already in Hungary by the environmental authorities



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Mixed plastic wastes in the waste stream

Traditional recycling has its limits

Mixed, comingled, multilayer plastics cannot be extruded together

Economics: high costs (e.g. labor in Norway) are prohibitive to select



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Solutions

Landfill – expensive and not environmental friendly



Cement kilns – not the most profitable solution



Plastic to oil technology: let us see the details





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Plastic to Oil Technology = TCC = Thermocatalytic Conversion

- 4000 tons per year input, modular system (TCC-4000)
- Commercialized technology, no „ifs and whens“
- 2 factories in the Hungary, the first more than 2 years in operation
- Cheap operation, easy maintenance
- Environmental standards are fully met
- High quality products
- Waste converted to energy



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What can be processed ?

All thermoplastics (polyolefines and engineering plastics), PVC max 3%, PUR max 3%

Final product is dependent on feedstock composition

Dirt and humidity max 10%
To be shredded to 2 cm size



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Plastic to Oil Technology



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Other materials which can be processes: synthetic carpets

- Agreed on testing with the Carpet Recycling UK association in February 2012
- Samples shredded in Austria by UNTHA shredders (sieve: 2 cm) in March 2012
- Delivered to Győr, Hungary to the company Szinflex, operator of the technology.
- Time of industrial testing: 24 April 2012
- The composition of the wastes was:
85% textile + 15% SBR rubber, with talc filler
Textile: 65% polypropylene, 20% wool, 15% nylon, polyester and jute

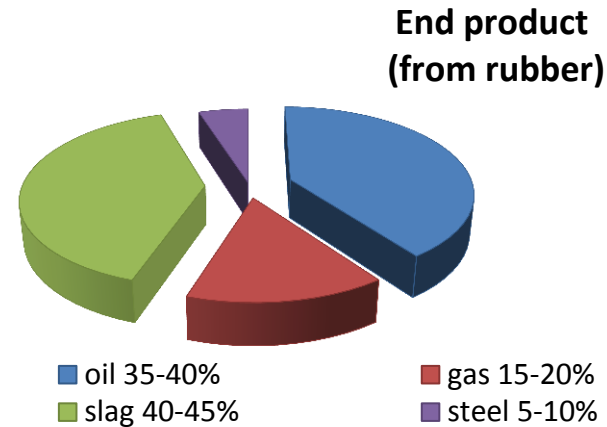
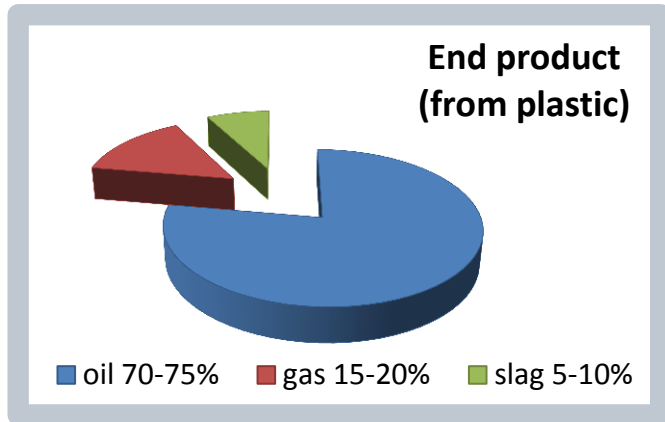
THE Technical Description of the Prozess

The produced carbon steam-phase is leaving the equipment and enters a multiple condenser system, where suitable liquid-phases are formed (similar to the fractional distillation process, but compared to the traditional distillation procedure, operated under conditions which are much more simple and economic).

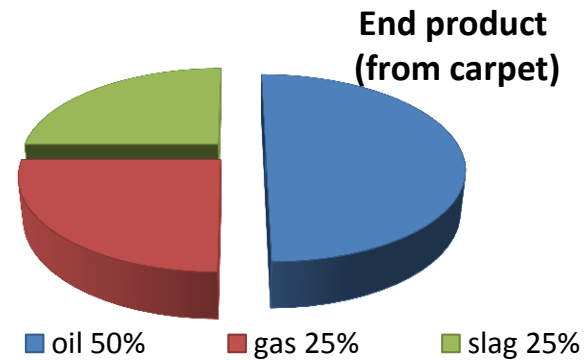
The thermocatalytic system is designed as a block system meaning that it has modular characteristics, i.e. smaller and larger capacity units may be constructed, step by step capacity increase can be easily achieved in a modular way.



Out of the process the following products are produced:



Oil = 40 MJ/kg >> distillation
 GAS = 50 MJ/m³ >> captive use for the process, burning at 1200°C >> atmosphere
 Slag = 16MJ/kg (equivalents to good brown coal: cement factory, steel mill)





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4000 tons per year plant in Fehervar-Csurgo, Hungary



**Thank you for your attention:
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