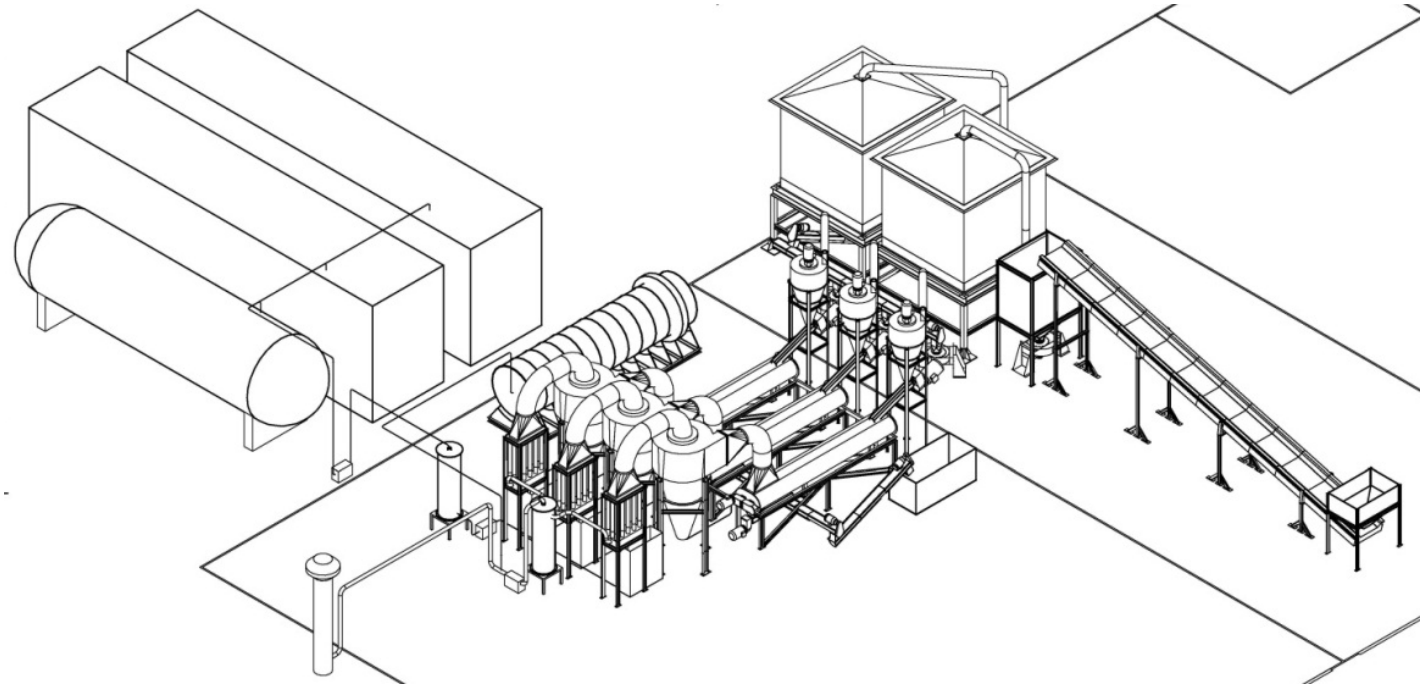


TK-500 - Technology

General description

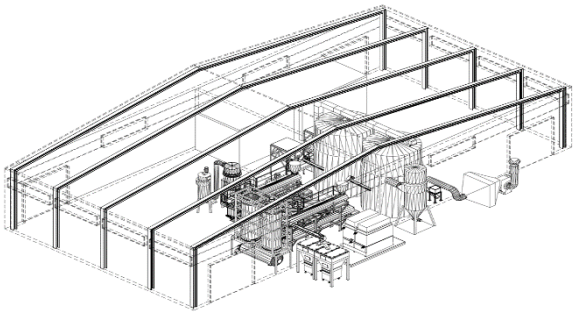
Ingenieurbüro A S
In den Mühlgärten 25
63755 Alzenau / Germany

Overview

Input

> Mixed plastics
> Used tires / rubber
> Biomass
> Composites

Thermo-Catalysis-Process



Energy efficiency till 85%

> light oil
> gas
> Coke / carbon

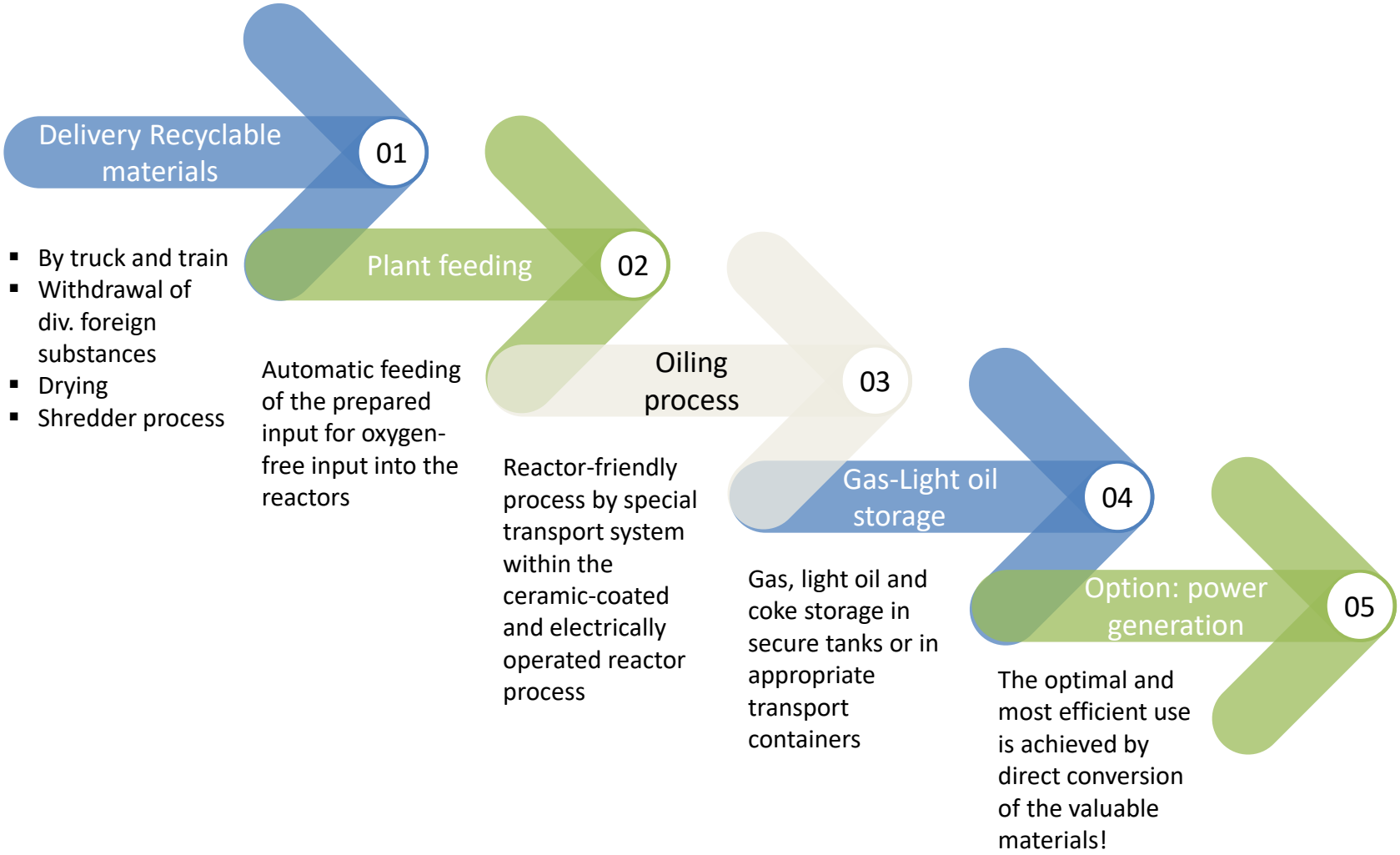
> Option: Power generation with generated light oil

Output

Ingenieurbüro A S
In den Mühlgärten 25
63755 Alzenau / Germany

Phone +49 (0) 6023-7039944
E-Mail info@ingbas.com

Procedure



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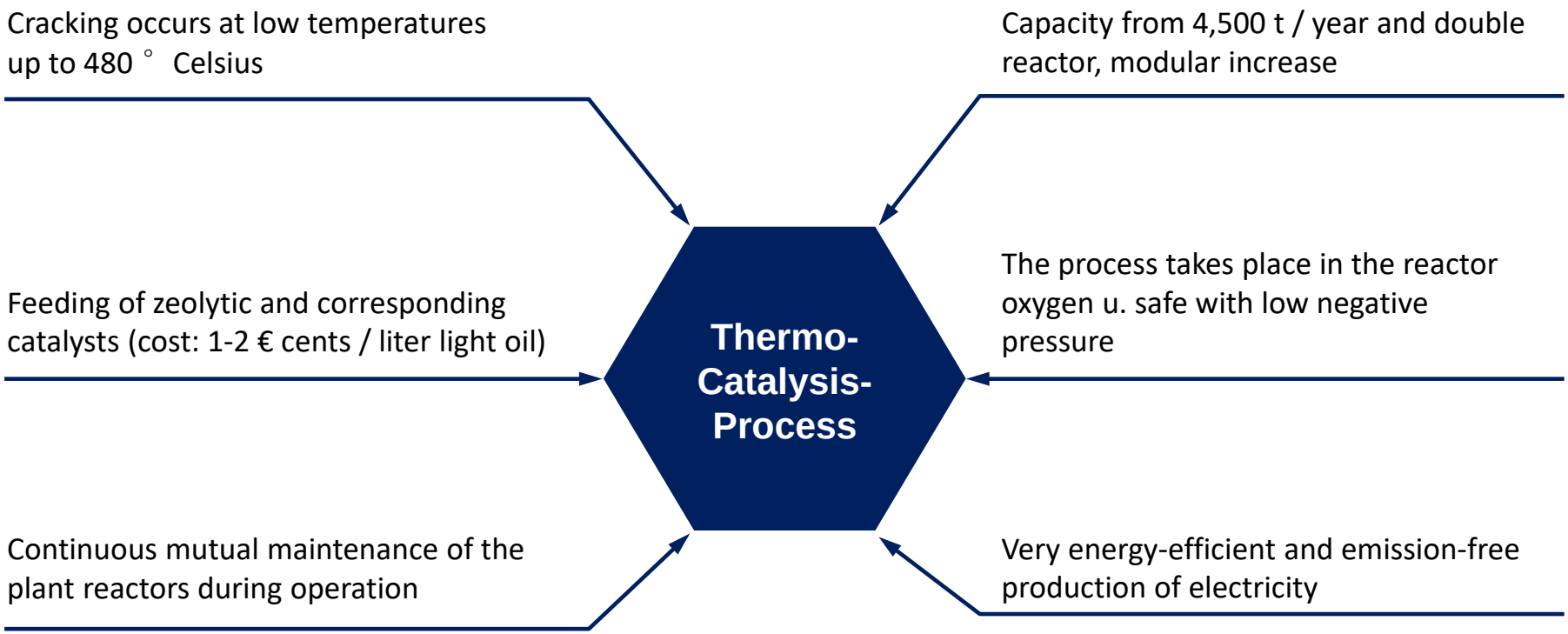
Process



Ingenieurbüro A S
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Benefits

Material flow

TK-500 recycles wide, unsorted and also impure material flows

The waste streams are processed to marketable products or for electrification, such as gas, light oil, coke, coal

The system can be diversified to multiple waste streams

Fully electronically controlled and monitored process

Technology

The technology was developed and commercialized by scientists in collaboration with? 3 universities

Future scientific support will be ensured

Profitability

The TK-500 system works in 3-shift operation (24/7)

Modular performance enhancement with increasing material flow quantities

Rising capacity reduces payback time

Option

Optimal power generation option via gas and light oil with dual-fuel generators!

Provides independent operating power and also network supply.

Ingenieurbüro A S
In den Mühlgärten 25
63755 Alzenau / Germany

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E-Mail info@ingbas.com

Potential

Example
Plastic consumption / plastic production

Capacity basic-TK-500 plant

Plastic waste in Germany per year

Plastic waste in the world per year

*Plastic garbage statistics 2016
** spiegel online / Production 2015

Ingenieurbüro A S
In den Mühlgärten 25
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Data sheet TK-500 dual unit

Space requirements

Space requirement for 1 double reactor	ca. 1,500 m² for double reactor basic system
Space requirement for second double system	ca. 650 m² each double reactor extension

Capacities

Processing capacity	**4.500 t / year** (375 t / month)
Output per ton of **plastic** in average	ca. 700 kg light oil ca. 50-75 kg coke
Output per ton of **tires** in average In addition, a ton of tires	ca. 500 kg light oil ca. 300-350 kg carbon as well as small quantities of metal

Output

Plastics	ca. 328,125 litre light oil / month
or fractionated to gasoline + diesel	ca. 195,234 litre diesel / month ca. 83,672 litre gasoline / month
Tires	ca. 185,943 litre light oil / month
or fractionated to gasoline + diesel	ca. 109,670 litre diesel / month ca. 47,397 litre gasoline / month
additional carbon output	ca. 130,147 kg carbon / month

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Data sheet TK-500– including cost overview

Operating costs / data

Plant operation by means of gas generators	Autarky through plant gas supply
Catalyst plastic upcycling	ca. 0.01 € / litre light oil
Catalyst tire / rubber upcycling	ca. 0.02 € / litre light oil
Power connection	400 V three-phase current (three-phase current)
Immission	45-50 dB
Emission	max. 650 mg/Nm³ CO_2

Personnel costs (single / basic plant)

Single unit per 8h shift	2 Employee
3-shift operation	6 Employee + 2 Employee

Prices - basic plant

Price includes mach./autom. feeding and associated process tanks. In addition, there is the possibility for fractionationing to gasoline and diesel. After training the employees and start of operation, a one-month free support is provided by the manufacturer's specialist staff.

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Phone +49 (0) 6023-7039944
E-Mail info@ingbas.com

Contact details…

Ingenieurbüro A S

Dipl.-Ing. Alfred Schmidt
Managing Director
In den Mühlgärten 25| 63755 Alzenau

Phone: +49 6023 - 7039944
E-Mail: info@ingbas.com