

A TEC

FROM WASTE TO ALTERNATIVE FUEL



A TEC
G R O U P

A Member of LOESCHE Family



ALTERNATIVE FUEL SYSTEM

Based on our expert knowledge in pyroprocessing and alternative fuel preparation, we have comprehensively optimized waste preparation and pyroprocessing. With a complete and unique alternative fuel system, A TEC covers all crucial steps from engineering to supplying equipment and plant construction.

As a complete system supplier with long-term experience in waste treatment and handling, we can guarantee significant commercial and environmental benefits:

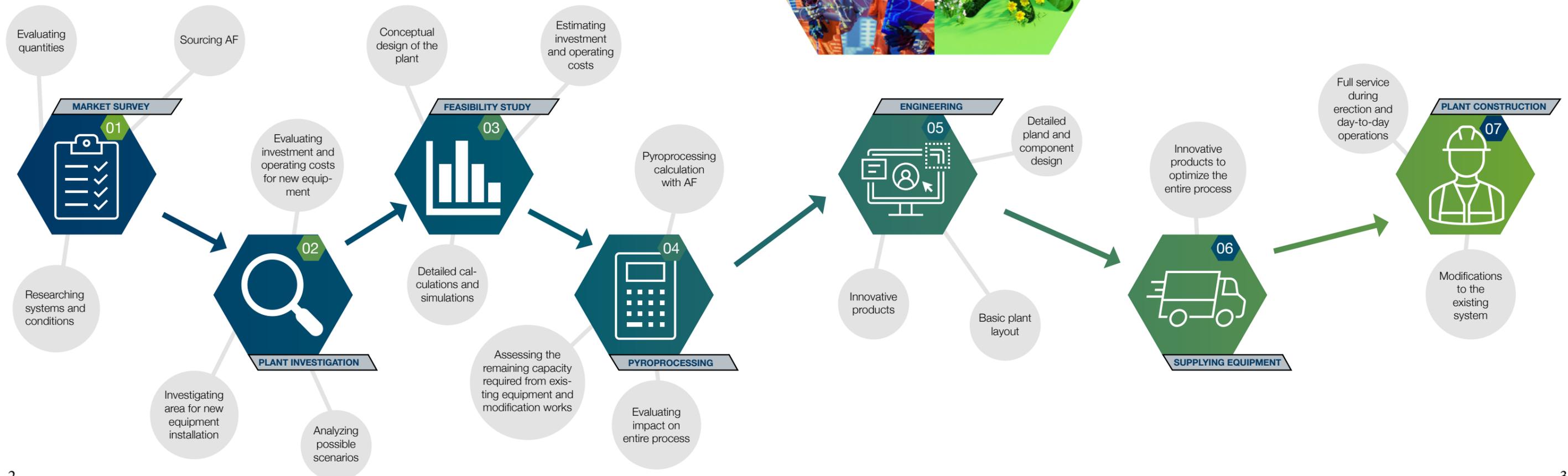
- Sustainable cost reduction
- Fast amortization
- Up to 100% substitution rate
- Compliance with environmental regulations
- Process guarantees
- Complete solution from a single source

IMPROVED ENVIRONMENTAL BALANCE

The shift to alternative fuel firing is of high priority at A TEC. By using modern and innovative technologies, combined with our process know-how, we can reduce costs and offer reliable solutions for the reduction of environmental impacts in the cement industry.



TAILOR-MADE SOLUTIONS FROM A TEC



01

DETAILED ANALYSIS

Before implementing a tailor-made alternative fuel system it is essential to carry out a detailed market survey. We take a look at sourcing available alternative fuels, and we evaluate the quantities of existing alternative fuels and research collecting systems and conditions.

02

RESEARCH ON SITE

After getting an idea of the preconditions, a team of engineers evaluate the existing system on site. The aim of the plant investigation is to identify available space for installing equipment, as well as analyzing possible conversion scenarios to increase the substitution rate.



- 03 FEASIBILITY STUDY
- 04 PYROPROCESSING
- 05 ENGINEERING
- 06 SUPPLYING EQUIPMENT

03

COMPLETE EVALUATION

To develop a complete system, a feasibility study with detailed process calculations and simulations will be carried out by our experts. A TEC estimates investments, operating costs and creates a conceptual design of the plant which will be carried out by our experts. Based on the clients target all necessary modifications and a concept for the new equipment to achieve the clients target will be worked out in the feasibility study. A survey of the investment and operating costs is also part of it.

04

OPTIMIZATION OF THE CORE

Pyroprocessing is the core of a complete alternative fuel system. A TEC generates pyroprocessing calculations with the available alternative fuels evaluate the impact on the entire process and assesses the remaining capacity required from existing equipment and modification works. The pyroprocess is the core of a successful and sustainably functioning system and use of alternative fuels. A TEC generates pyroprocess calculations and if necessary CFD-models.



05

VAST EXPERIENCE

Based on the collected data and the customer's demands, our technicians create tailor-made basic engineering techniques, including a detailed plant design and a component design. Computer-aided simulations of process parameters after modifications provide a precise representation of possible achievements.

06

A TEC's FLASH DRYER

The aim of A TEC's Flash Dryer is to dry alternative fuels with very high moisture. Improving and increasing the amount of solid alternative fuels in a cement plant is the purpose of A TEC's Flash Dryer. A TEC's Flash Dryer can handle solid alternative fuels with a moisture content of up to 40%. Due to the reduction of the moisture to a minimum the ignition and combustion properties will be improved significantly and allows higher substitution rates in the kiln system.

- Usage of waste gas
- Simultaneous drying & improving of fuel quality
- Removal of heavy and oversize 3D material
- Compact installation, small footprint
- Customized for every capacity.
- Online operation possible
- Minimized risk of fire

06

A TEC ROCKET MILL

The A TEC Rocket Mill is the next step in the preparation of alternative fuels. Effective grinding is possible in one step. With this grinding technology a drying effect of approx. 10% is achieved. Additional drying with process gas for very wet alternative fuels is possible. A TEC has patented a special procedure for processing alternative fuels; it allows AF to be dried using waste gas during the crushing process in A TEC Rocket Mill. Drying rates of more than 10% are possible (in combination with A TEC's Flash Dryer). The ultra-fines are dusted and also dosed to the kiln system.

- Size reduction to 2mm in one step
- Easy to operate and maintain
- No knives to keep sharp
- Separation of metal materials
- Different output fuel particle sizes possible
- Drying effect of AF from up to 10% without any additional heat source
- High resistance to foreign objects



06

Combination

If it's necessary to grind and dry alternative fuels to a greater extent, a combination of the A TEC Rocket Mill and the Flash Dryer is possible.



06 SUPPLYING EQUIPMENT

07 PLANT CONSTRUCTION



06

A TEC COMBUSTION CHAMBER

Our combustion chamber significantly improves the combustion process by using tertiary air with 21% oxygen. A significantly higher temperature can be achieved, compared to conventional calcines, due to the closed volume combustion. Another advantage is the increase in retention time, which allows the combustion of bigger particles.

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A TEC SWING CHUTE

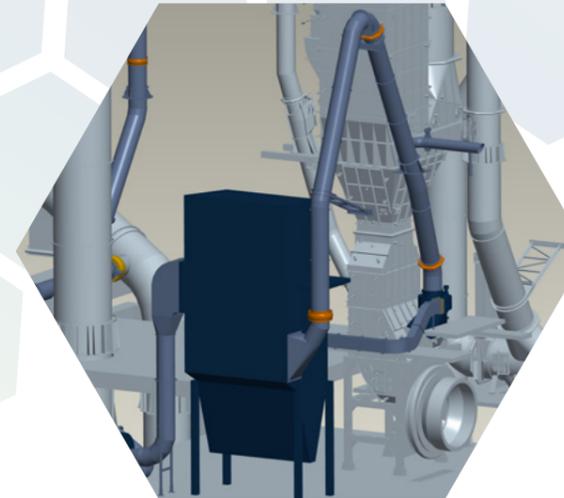
The swing chute is used as safety equipment for feeding alternative fuels into the combustion system. In the event of an operating problem, the gravity-driven chute swivels out and completely closes the furnace system off from the alternative fuel feed. No drive is needed.



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A TEC POST COMBUSTION CHAMBER

The mixing of combustion exhaust, tertiary air streams and unburnt fuels can be hugely improved using our Post-Combustion Chamber. This results in better combustion and lower CO emissions.



06

A TEC REDUCLOR® BYPASS

The REDUCLOR® Bypass prevents chlorine from circulating during the combustion process. This can be ensured using a take-off chamber above the kiln inlet (specifically designed for each installation) and a maintenance-free quenching chamber where the chlorine condensates and adheres to the fine dust particles. After this condensation process, the Cl-enriched material is collected in a filter.



06

DeNox SYSTEM

The DeNox System is your way to minimize NOx emissions below the limit of 200mg/Nm³.

07

LOCAL EXPERTISE

Finally, the modifications are implemented to the existing system on site. We support our customers during the reconstruction or erection, and afterwards during day-to-day operations.



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