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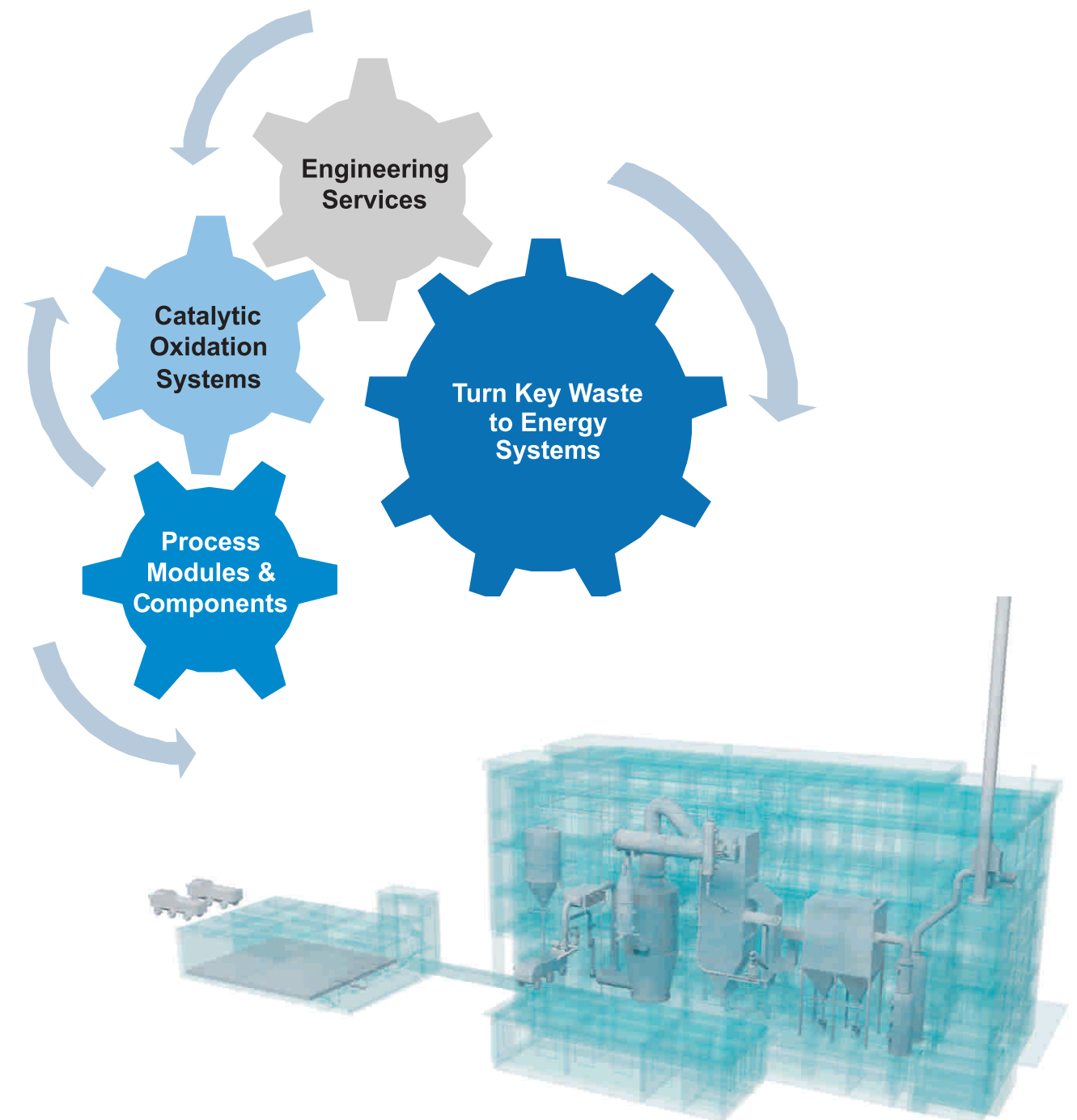
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# RASCHKA ENGINEERING

[www.raschka-engineering.com](http://www.raschka-engineering.com)

*We strive to be one of the leading providers for engineering and EPC services and a reliable partner for our clients.*

Raschka Engineering

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## Company

Raschka Engineering Ltd  
Liestal, Switzerland  
Engineering and EPC-Plant Construction Company

## History

1946  
Dipl.-Ing. Georg Raschka  
Ingenieurbüro GmbH&Co.KG  
Heidelberg, Germany

2008  
Lonza Engineering Ltd  
Basel, Switzerland

2011  
Lonza Engineering acquires  
Raschka Ingenieurbüro GmbH&Co.KG

2013  
Lonza Engineering renamed as Raschka Engineering  
Relocated from Basel to Liestal

## Currently

Raschka Engineering Ltd and its 100 % subsidiary  
Raschka Guangzhou Engineering & Consulting Ltd., Guangzhou, China  
Offices:  
Liestal (Switzerland)  
Guangzhou | Tianjin | Wuxi | Beijing (China)

## Performance & Success

- More than 100 RASCHKA-references in Europe and Asia
- RASCHKA – products and services:  
generally accepted as a landmark and state of the art technology
- 70<sup>th</sup> anniversary in 2016







## Turn Key Waste to Energy Systems

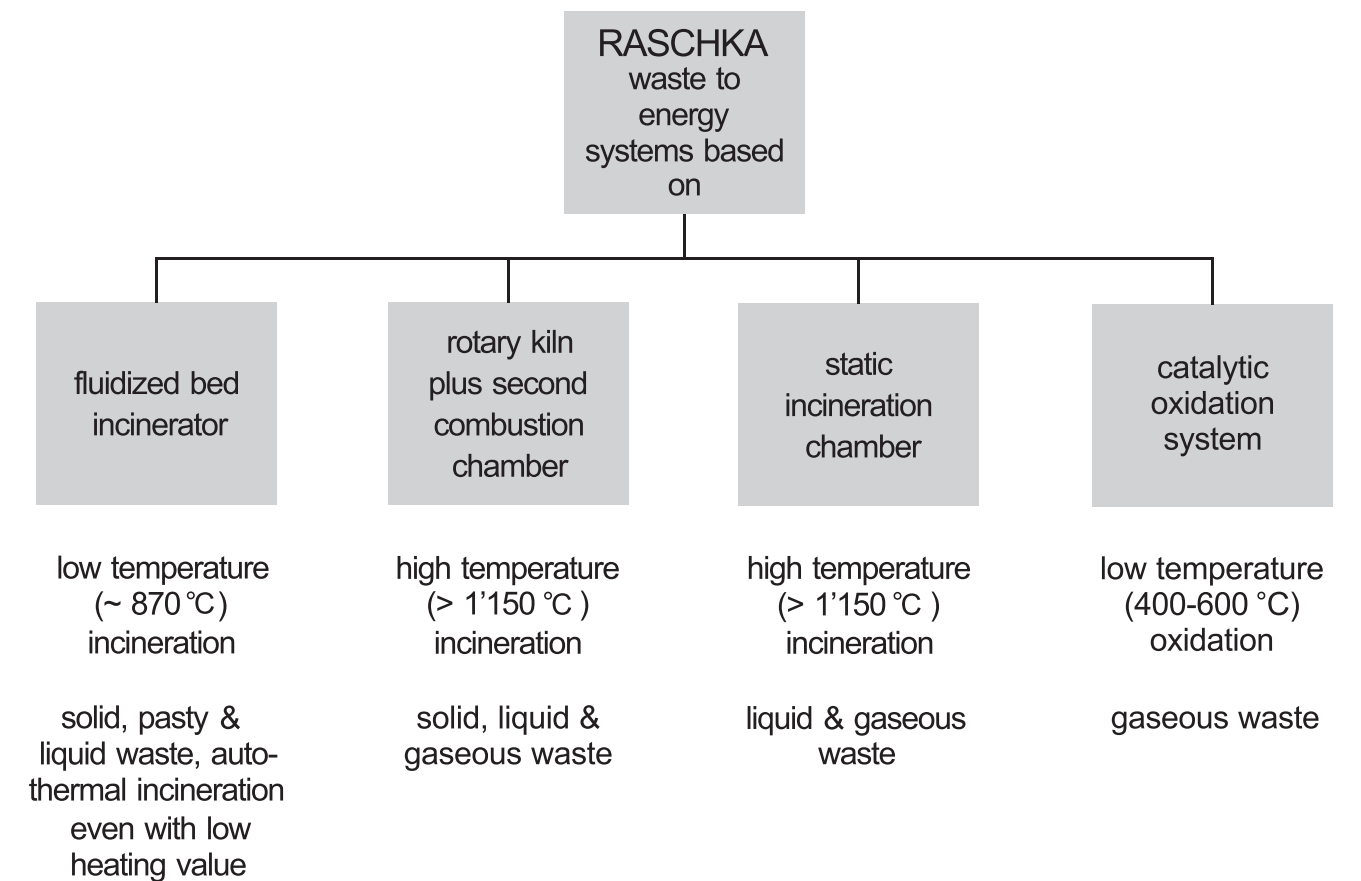
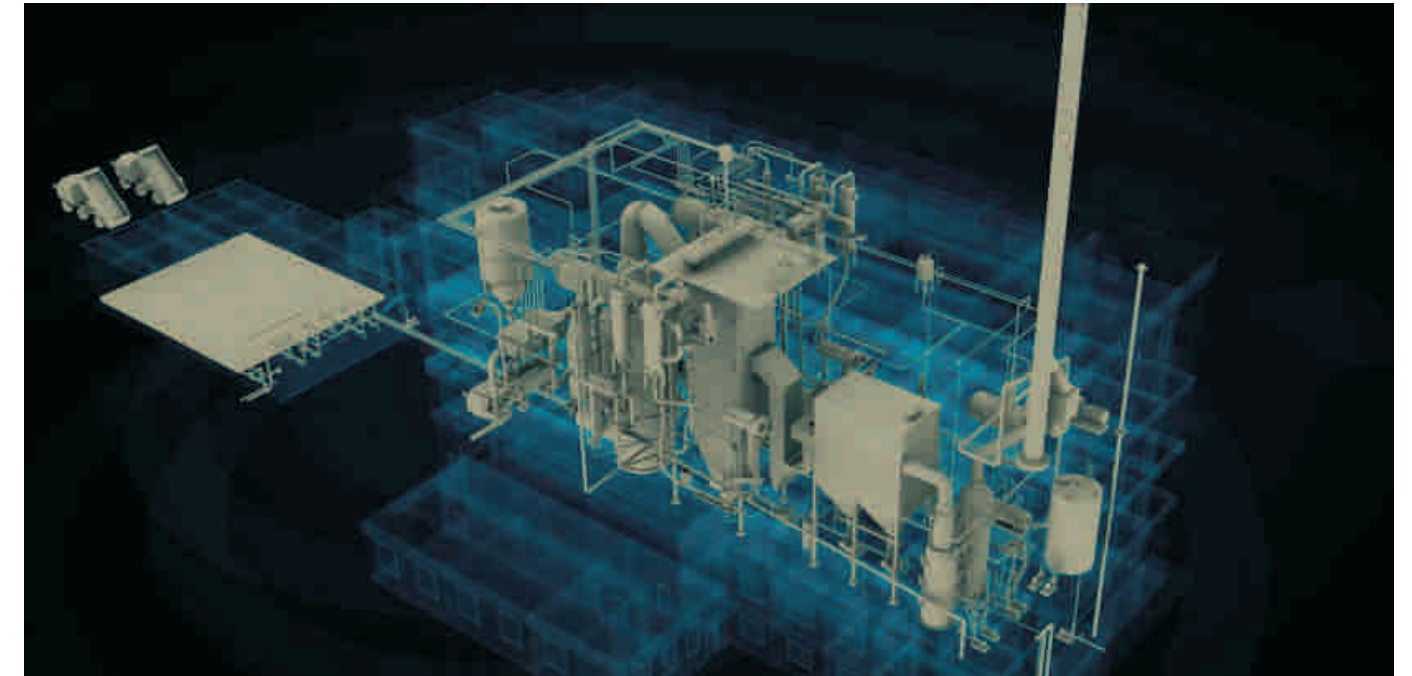
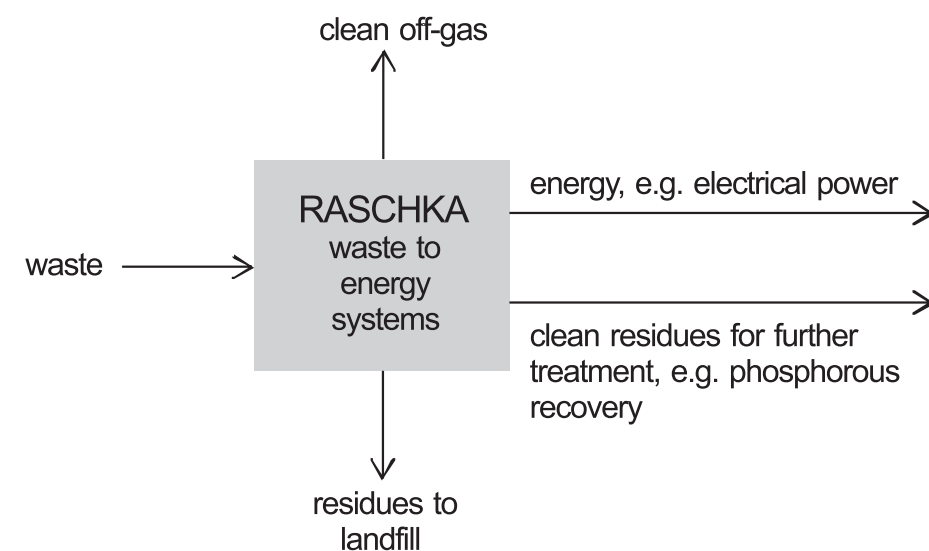
### Waste

- harmful components (organics, pollutants, heavy metals etc.)
- impact to nature and mankind

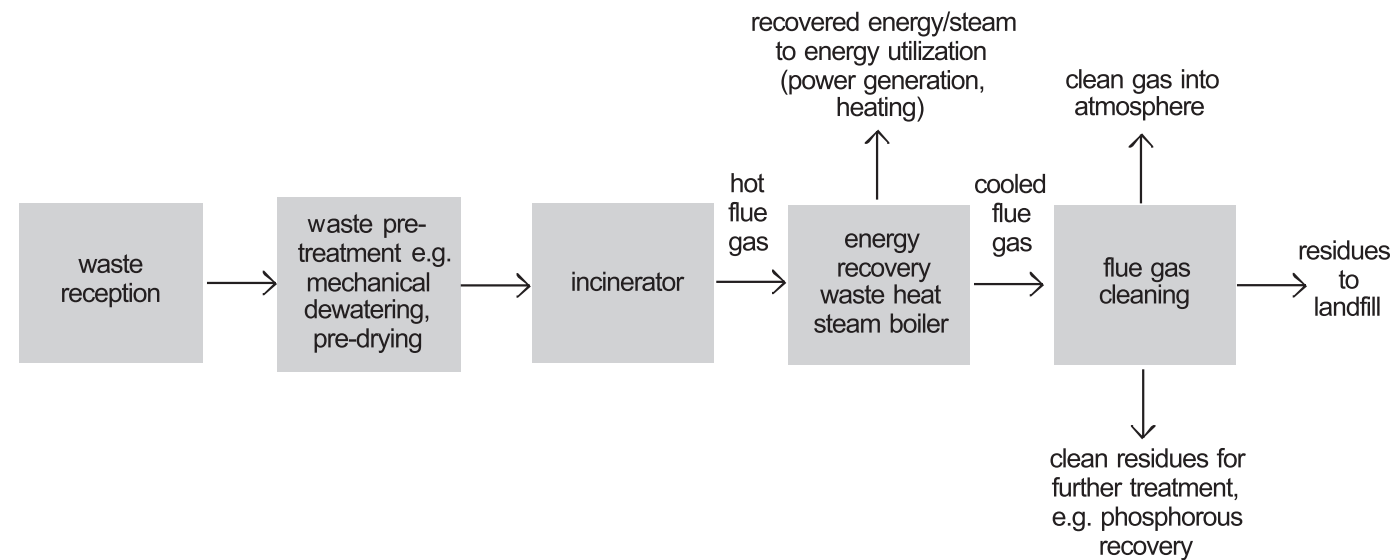
to be disposed by incineration in an environmentally friendly way

Waste contains energy to be recovered and utilized

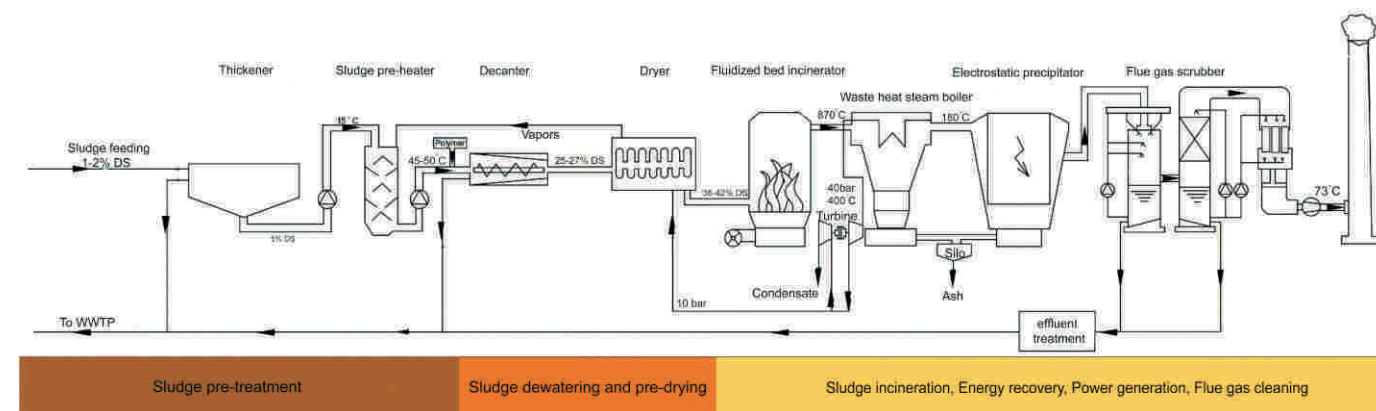
RASCHKA waste to energy systems dispose waste thermally, environmentally friendly, recover and utilize the energy.



## General plant composition



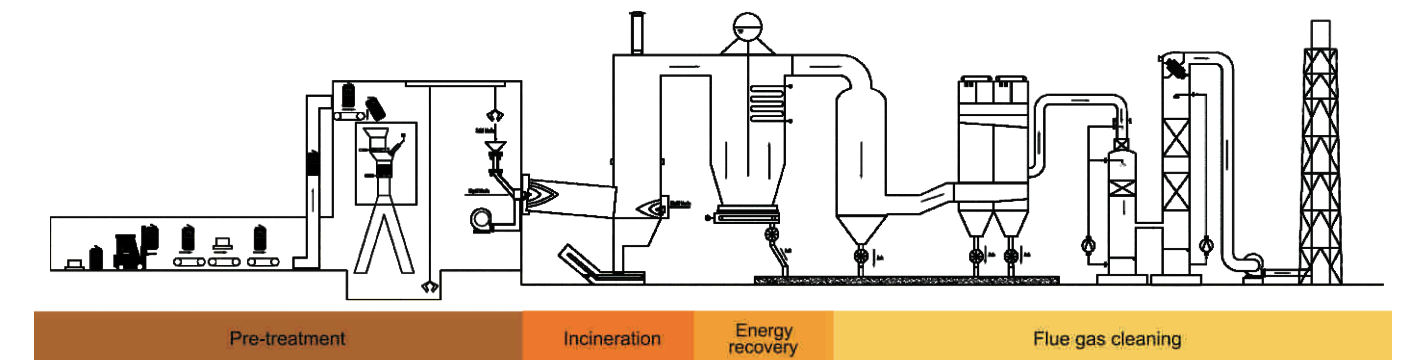
## Example: fluidized bed incineration plant (sewage sludge incineration)



### Chifeng Sewage Sludge Treatment Plant

- Start up 2015
- Inner Mongolia, China
- Fuel capacity: 1.8 t/h DM (Raw sludge with 1.5% to 2% dry mass plus diluted old sludge)

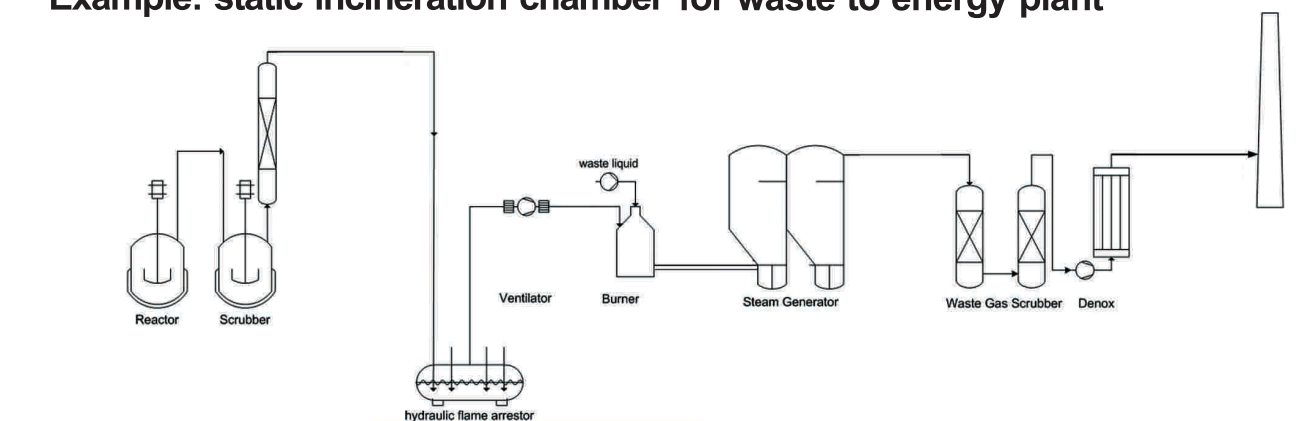
## Example: rotary kiln incineration plant



### Northeast Pharmaceutical Co., Ltd Residue Incineration Plant

- Start up Q3 2016
- Shenyang, China
- Fuel capacity: waste liquid: 300 kg/h, solid waste: 600 kg/h, pasty waste: 300 kg/h

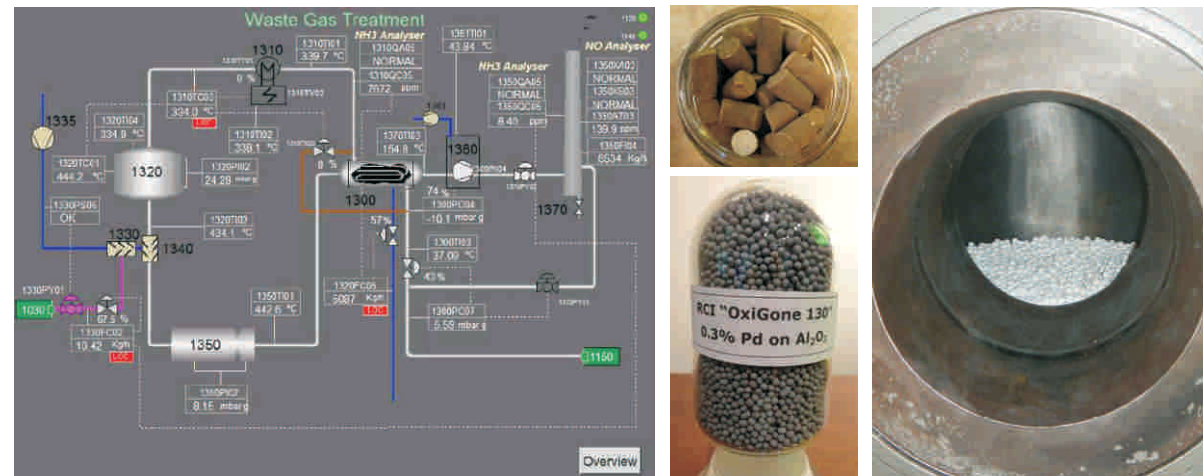
## Example: static incineration chamber for waste to energy plant



### Lonza Guangzhou Nansha Co., Ltd waste liquid & off-gas Incineration Plant

- Start up 2008
- Nansha, Guangzhou, China
- Fuel capacity: Off-gas: 1'400 Nm³/h, waste liquid: 1 t/h





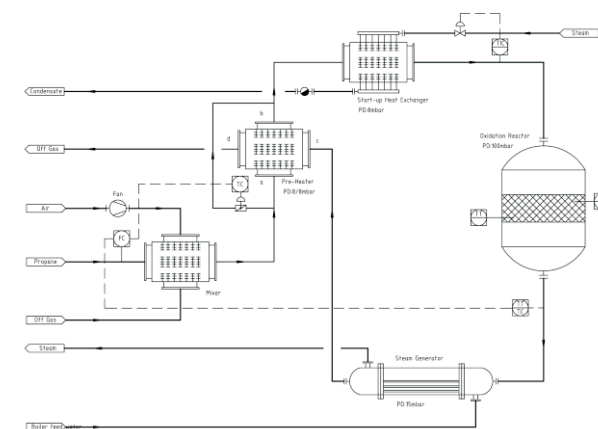
## Catalytic Oxidation Systems

Off-gas containing VOCs (volatile organic compounds) is harmful and must be treated.

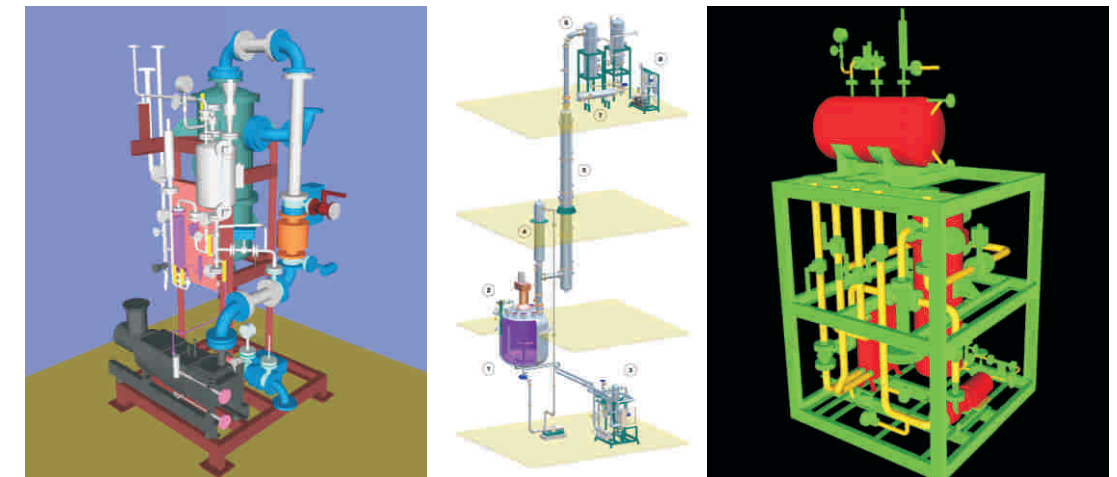
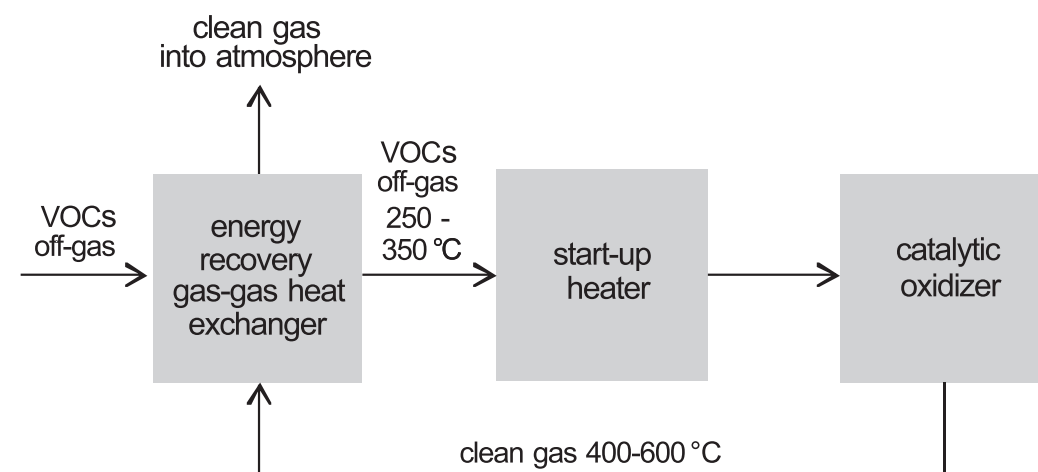
Common off-gas treatment by high temperature incineration: high energy demand.

Solution: low temperature catalytic oxidation process for complete oxidation of the organics obtaining clean gas and harmless  $\text{CO}_2$ .

- Energy recovery
- Self-sustaining process
- Additional energy only for start-up



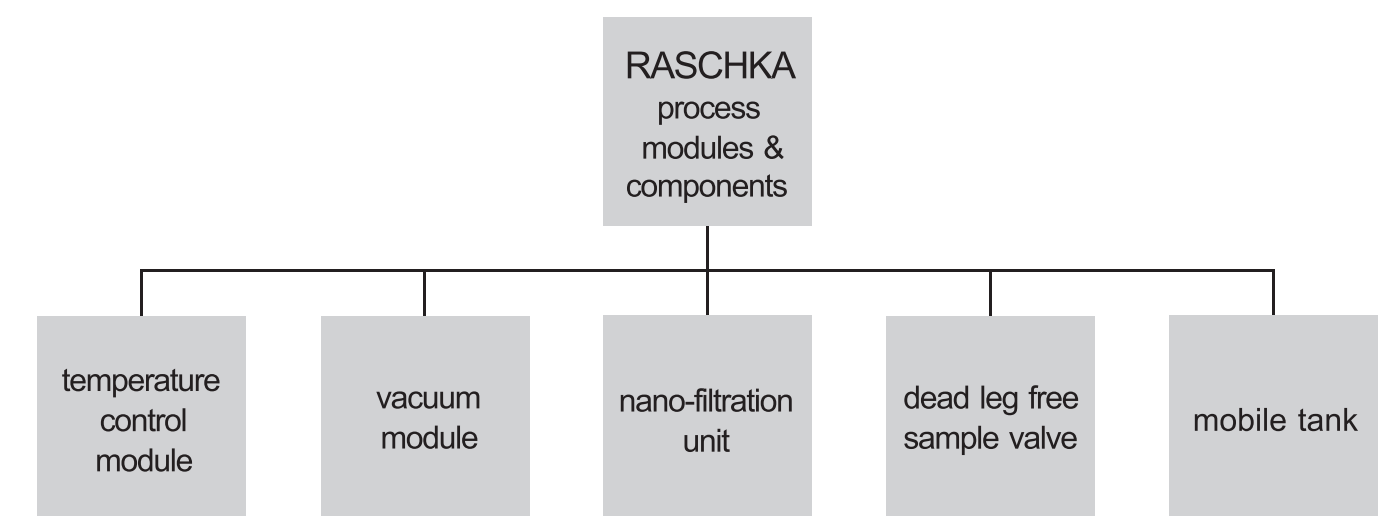
Application for catalytic off-gas treatment from chemical processes solved by Raschka Engineering.



## Process Modules & Components

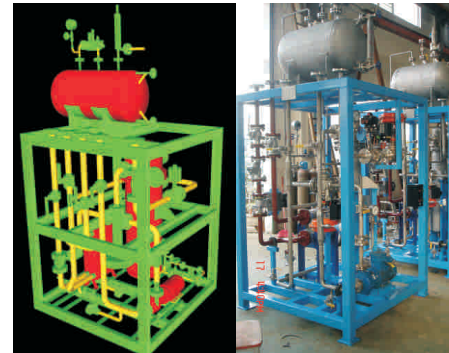
Systems designed and manufactured by RASCHKA

- Proven and tested systems
- Various applications
- High reliability, efficiency and safety



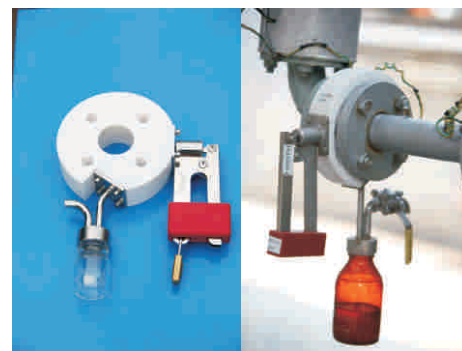
## Temperature Control Module

- Accurate temperature control
- Essential for quality and safety
- Full temperature flexibility from -20°C to +180°C



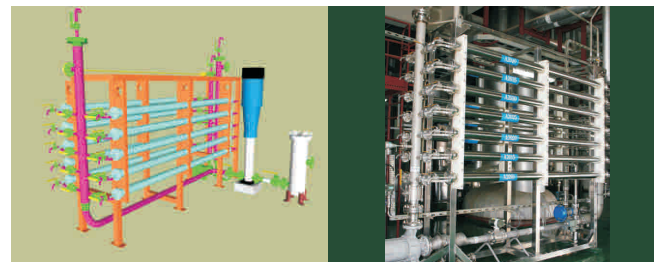
## Dead Leg Free Sample Valve

- Designed for minimum hold up
- Full PTFE body
- Hastelloy C valve seat
- Very compact size



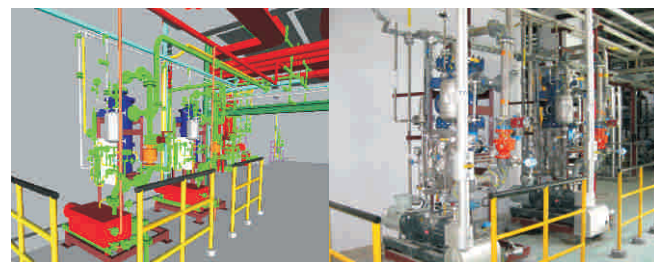
## Nano-filtration Unit

- High efficiency pressure driven membrane filtration
- Skid mounted



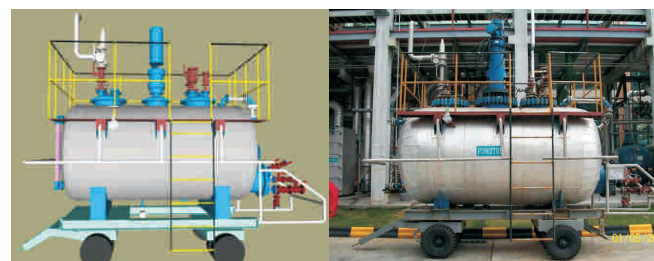
## Vacuum Module

- Modular designed vacuum pump system
- Suitable for toxic and/or corrosive gases



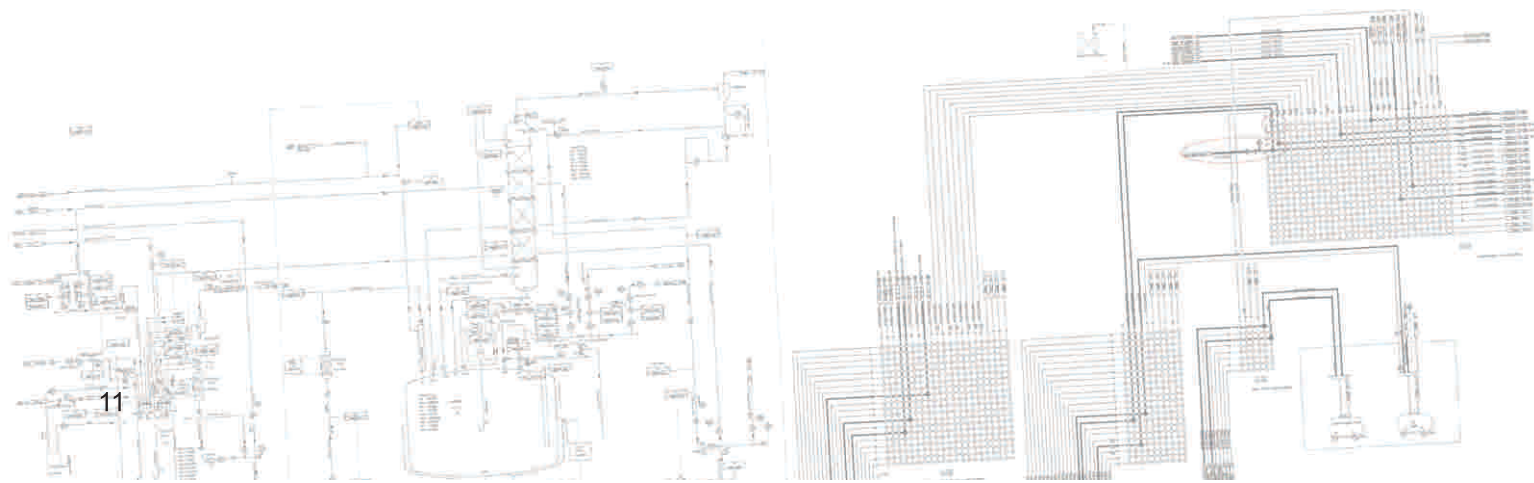
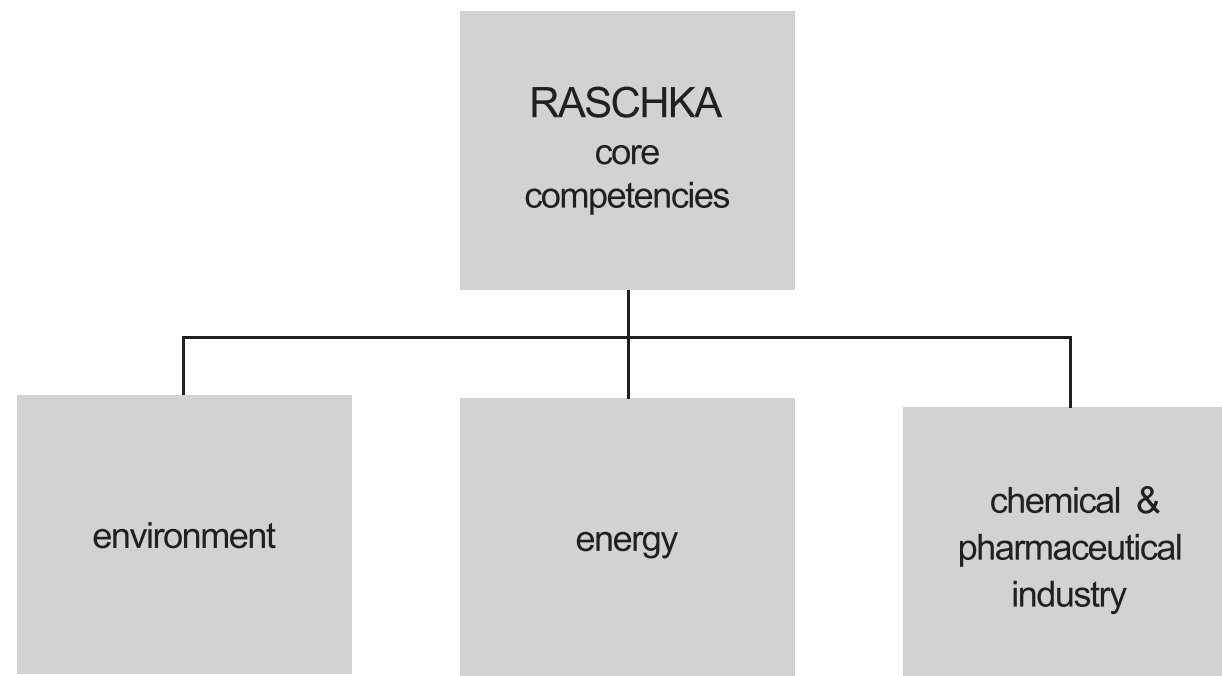
## Mobile Tanks

- Equipped with all required safety elements
- Including jacket for heating
- Including stirrer
- Available in different material (SS, glass lined)



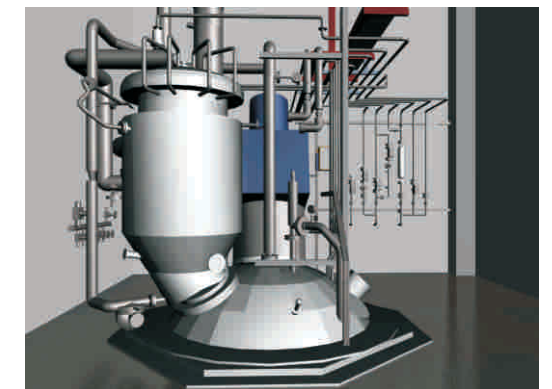
# Services





## Engineering & Consulting

- Establishing the basis of the project
- Preliminary design
- Final design
- Building permission application
- Execution drawings and specifications
- Procurement
- Project management, control, supervision & documentation
- Commissioning & start-up
- Personnel training
- Maintenance
- Consulting
- GMP qualification & validation
- Quality supervision and testing
- Optimizations
- Retrofits



3-D Model



Installed and ready for operation