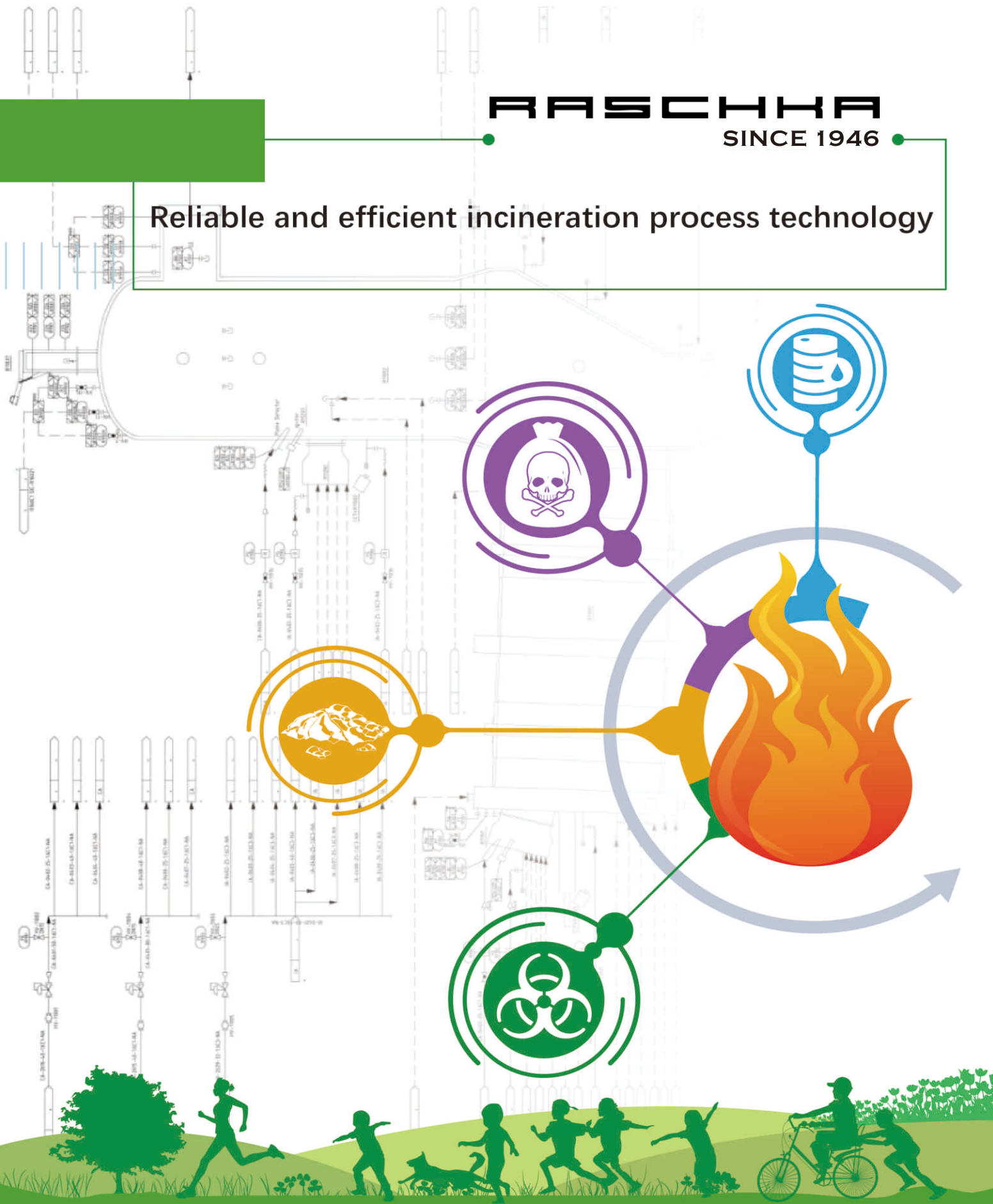


RASCHKA
SINCE 1946

Reliable and efficient incineration process technology



RASCHKA ENGINEERING

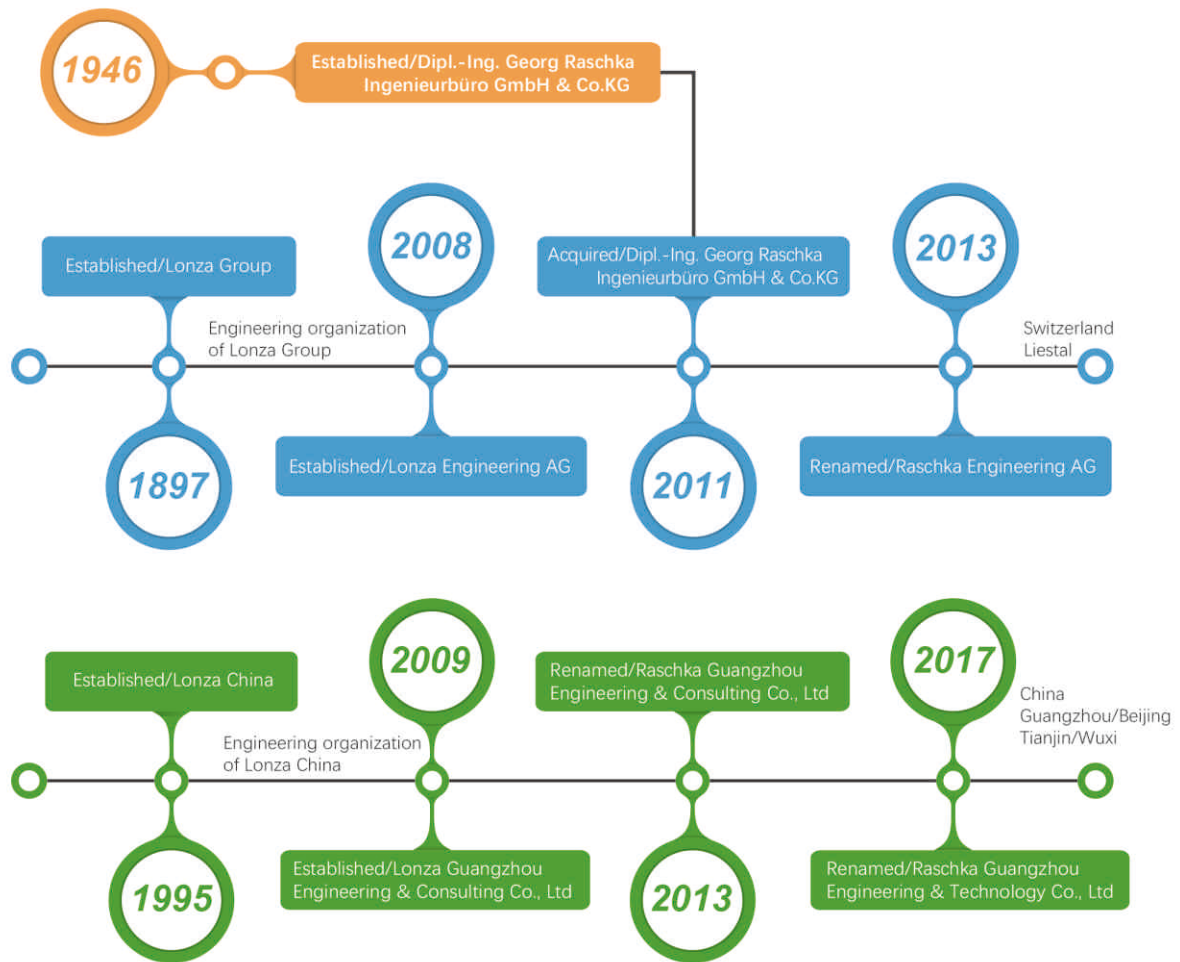
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About us

● China ● Switzerland ● Germany

History



Scope of Business

According to the different waste properties, Raschka Engineering can provide customized incineration process solution, which includes but is not limited to:

- Sludge drying and incineration systems
- Waste liquid and off-gas incineration systems
- Rotary kiln with secondary combustion chamber systems
- High salt content waste liquid or solid salt incineration systems
- High halogen content waste incineration systems

Raschka Engineering provides waste treatment technology training, facility operation and maintenance service upon request.

Reference locations



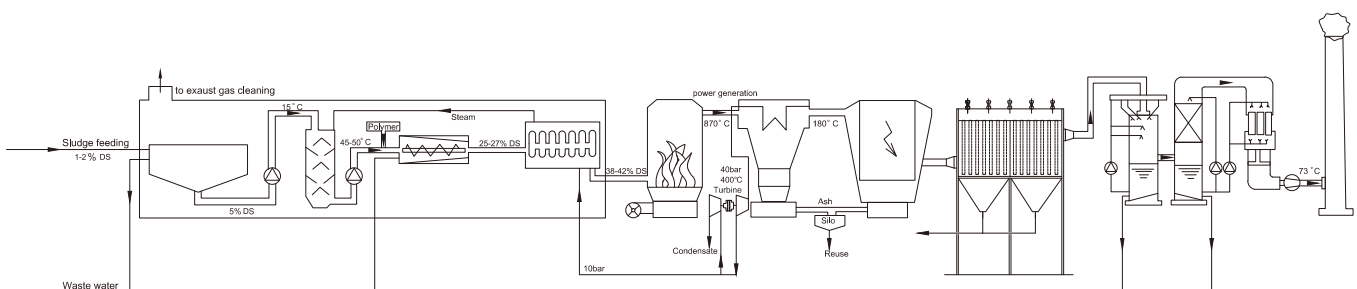
Strength and Advantages

- More than 100 RASCHKA-references in Europe and Asia
- High reliability and low operation cost
- Rich experience in system operation and maintenance :
 - 120 ton/day sludge drying and incineration system owned by Lonza Group is operational since 1976 and is running very well ever since.
 - 50,000 ton/a hazardous waste incineration center (phase 1 & 2) owned by Lonza Group, started up in 1984 and 1998, is one of the important regional waste treatment facility in Switzerland still today.
- Strong emphasis on technical innovation, development and research (several patents have been granted)
- Raschka Guangzhou Engineering & Technology Co., Ltd has been awarded with the honor of “Guangdong High-tech Enterprise” and “Guangzhou Pioneer Enterprise” .

Fluidized bed incineration system



- More than 70 years experience
- Incineration temperature approx. 870°C
- Used for solid, pasty & liquid waste incineration
- Auto-thermal incineration even with low heating value
- Delivered the world's largest single-line Fluidized Bed Incinerator for sludge (Throughput: 13.5ton DS/h)
- Particularly used for the incineration of:
 - Sludge from communal- & industrial waste water treatment plants
 - Waste from chemical industries
 - Waste from pulp & paper industries
 - Inferior coal, low-grade coal
 - Industrial , refinery & coal slurries
 - Bark, wood chips, rice husk and other biomass



Sludge pre-treatment

Sludge dewatering & drying

Sludge incineration, Energy recovery, Power generation, Flue gas cleaning

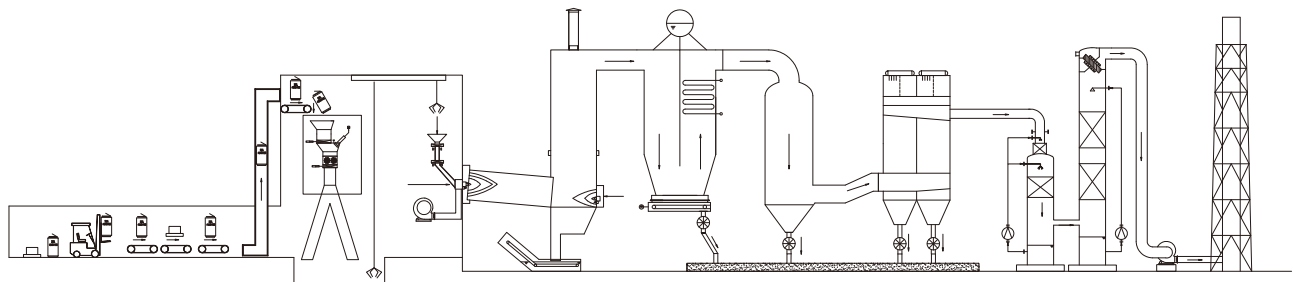
Rotary kiln & secondary combustion chamber system



Qidong hazardous waste treatment plant

- Start up : 2018
- Location : Qidong, Jiangsu province, China
- Fuel capacity : 25,000 t/a

- Wide application range
- Used for solid, liquid & gaseous waste incineration
- Widely used in hazardous waste treatment center and Chemical production enterprises
- Incineration temperature $>1,100^{\circ}\text{C}$ ensures a complete combustion
- High efficiency SNCR process
- Reliable and efficient
- High operational availability with minimum maintenance, annual operation time $>7200\text{h}$
- Low operation cost



Pre-treatment

Incineration

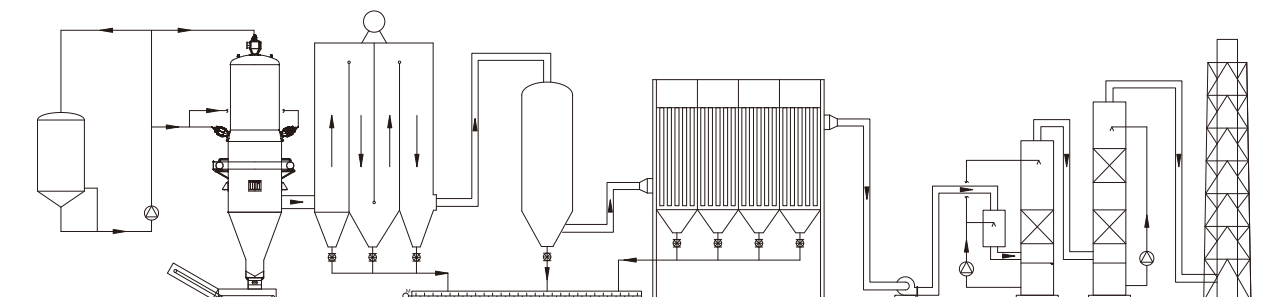
Energy
recovery

Flue gas cleaning

Static combustion chamber system



- Used for liquid & gaseous waste incineration
- Incineration temperature >1,100°C ensures a complete combustion
- Reliable and efficient
- Highly automated
- Low operation cost
- Widely used in hazardous waste treatment centers and chemical production enterprises
- High operational availability with minimum maintenance with annual operation time >8000h



Pre-treatment

Incineration

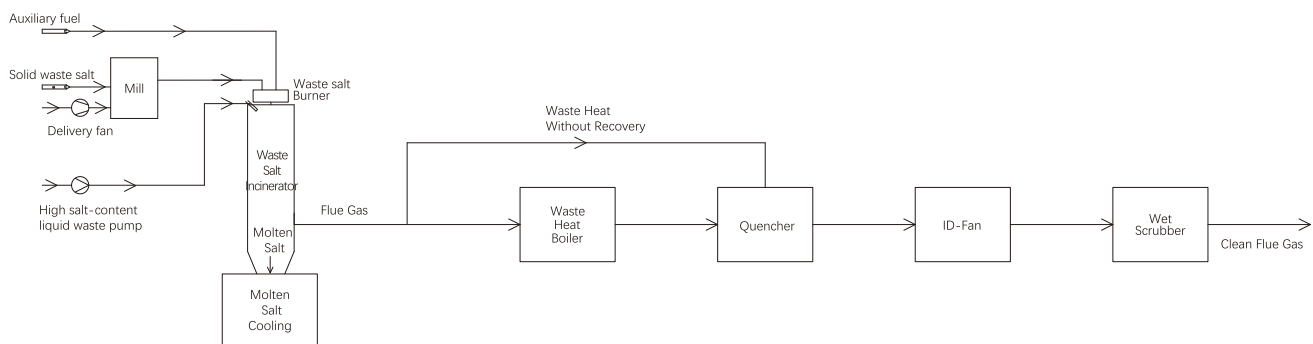
Energy recovery

Flue gas cleaning

Solid waste salt continuous incineration system



- Solid waste salt is milled to less than 150 microns before feeding to the incineration system
- Organic substance achieves total combustion in a very short time
- Salty liquid and solid waste with high salt content can be incinerated at the same time
- Combustion is supported by waste liquid
- Heat recovery by steam boiler
- Complete product salt recovery with TOC<30ppm
- Flue gas is cleaned and discharged meets local and international standards
- Zero waste water discharge



Pre-treatment

Incineration

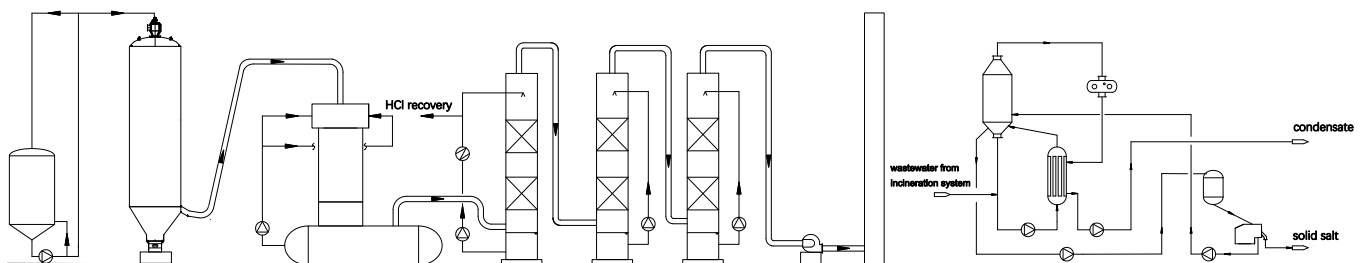
Energy recovery

Flue gas cleaning

High halogen concentrated waste incineration system



- A special refractory formulation has been applied and has been verified in many practical cases over a long period of time.
- The residence time of flue gas in the high temperature zone above 1,200°C is longer than 3 seconds, which ensures the effective disposal of waste and effectively reduces dioxin production.
- Hydrochloric acid can be extracted from incineration flue gas
- Low Nitrogen Combustion Technology and wet method de-NO_x process, NO_x emission less than 100mg/Nm³
- Zero waste water discharge



Extract from Reference List

More project information, please visit our website
www.raschka-engineering.com

Jinagsu Ruiheng New Material Technology Co., Ltd	China Jiangsu	Engineering and delivery of entire plant (EPC contract) Throughput: hazardous waste 20,000 t/a
SUEZ Go Higher Environmental Technology (Dongying) Company Limited (CN)	China Shandong	Engineering and delivery of entire plant (EPC contract) of Hekou Blue Economy Industrial Park Solid Waste Treatment Center Throughput: hazardous waste 30,000 t/a
Nantong Acetic Acid Chemical Co., Ltd	China Nantong	Engineering and delivery of entire plant (EPC contract) Throughput: hazardous waste 35,000 t/a
Zhucheng Oasis Recycled Resources Co., Ltd	China Shandong	Hazardous waste incineration system of waste treatment center of Shandong Zhucheng City Throughput: hazardous waste 15,000 t/a
Jiangsu Changqing Agrochemical Group Co., Ltd	China Yangzhou	High F ⁻ content waste liquid incineration system Throughput: High F ⁻ & Br ⁻ content waste liquid 9,000 t/a
Weifang Xinlv Chemical Co., Ltd	China Shandong	Solid waste incineration system Throughput: waste salt 6.3t/h ; waste liquid 1.3t/h ; Off-gas 410kg/h
Nantong Guoqi Environmental Protection Technology Co., Ltd.	China Jiangsu	Hazardous waste incineration system of waste treatment center of Jiangsu Qidong City Throughput: hazardous waste 25,000 t/a
Shanghai Zhongxi Sunve Pharmaceutical Co., Ltd	China Shanghai	Liquid waste and off-gas treatment plant Throughput: waste liquid 100kg/h ; Off-gas 300Nm ³ /h
SCIP SITA Waste Services Co., Ltd (subsidiary of Suez Environment Group)	China Shanghai	Hazardous waste incineration system Throughput: waste liquid 180 t/d + off-gas 60 t/d
Jiangsu Changqing Agrochemical Group Co., Ltd	China Yangzhou	Hazardous waste incineration system Throughput: solid waste salt 40 t/d + Hazardous waste 70 t/d
Northeast Pharmaceutical Co., Ltd	China Shenyang	Hazardous waste incineration system Throughput: waste liquid 333kg/h + solid waste 625kg/h + pasty waste 292kg/h
Formosa Plastics Corporation	China Taiwan Kaohsiung	Basic- and detail engineering and supply of special parts for a fluidized bed incineration plant Throughput: 2 t/h of industrial sludge and fibres (20-30% DM) 0.2 t/h waste oil
Chifeng Derun Drainage Co., Ltd.	China Inner mongolia	Sludge incineration system Throughput: 90 t/h with maximum DM concentration of 2%

Meihua holding group ltd Xinjiang wujiaqu plant	China Xinjiang Wulumuqi	Fluidized bed incineration system Throughput: up to 15 t/h of liquid waste, 4.4 t/h of sludge (15-20 % DM) and up to 2.5 t/h of coal
Meihua holding group ltd Tongliao meihua bio-tech Co., Ltd	China Inner mongolia	Sludge and waste liquid incineration system Throughput: Sludge 3.125 t/h (20% DM) + waste liquid 8,330 kg/h
Lonza Guangzhou Nansha Co., Ltd	China Guangzhou	Liquid waste and off-gas treatment plant Throughput: Off-gas 1,400Nm ³ /h + waste liquid 9,000 t/a
LANDSHAUPTSTADT MÜNCHEN	Germany München	Approval planning, engineering, supply, erection and commissioning of two fluidized bed incinerators for the sewage sludge incineration plant, Throughput: each 3 t/h of sewage sludge (referring to DM)
STADT KARLSRUHE KARLSRUHE	Germany Karlsruhe	Engineering, supply, erection, commissioning of the fluidized bed incinerator for the fluidized bed incineration plant (Plant #2, s.b.), Throughput: 5.4 t/h of sewage sludge (36% DM) and 0.6 t/h of residues of WWTP (45% DM)
INNOVATHERM GMBH	Germany Lünen	Approval planning, engineering, supply, erection and commissioning of the fluidized bed incinerator, two sludge hoppers and feeding system and ash cooling and transportation for a sewage sludge incineration plant Throughput: 13.5ton DS/h of coal-conditioned sewage sludge corresponding to a TC of 37 MW
KALOGEO ANLAGENBAU GMBH	Austria Leobersdorf	Engineering/Consulting: Elaboration of the process parameters and process alternatives, project and detail planning services for a fluidized bed incinerator Throughput: 5 t/h of sewage sludge (33% DM)
GENTECH ENGINEERING & TRADING	China Taiwan Taipei	Basic- and detail engineering and supply of special parts for a fluidized bed incinerator Throughput: 16.1 t/h of coal conditioned paper sludge (35% DM)
SAMSUNG ENGINEERING CO.,LTD.	Korea Seoul	Engineering, partial supply for a fluidized bed incineration plant, personnel dispatch Throughput: 15.7 t/h of paper sludge, waste and rejects (35-40% DM)
LANDSHAUPDSTADT STUTT GART	German Stuttgart	Engineering, supply, erection, commissioning of the fluidized bed incinerator, waste heat steam boiler and electrical and process measuring and control system for the fluidized bed incineration plant (Plant #2, s.b.) Throughput: 18.2 t/h of sewage sludge (22% DM) and 1.0 t/h of residues of WWTP (15% DM)
HAMBURGER AG	Austria Pitten	Engineering, partial supply, commissioning of a fluidized bed incineration plant Throughput: brown coal patent fuel corresponding to a TC of 67 MW
LONZA AG	Switzerland Visp	Engineering, supply, erection, commissioning of a fluidized bed incineration plant Throughput: 5 t/h of sewage sludge (15% DM)

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