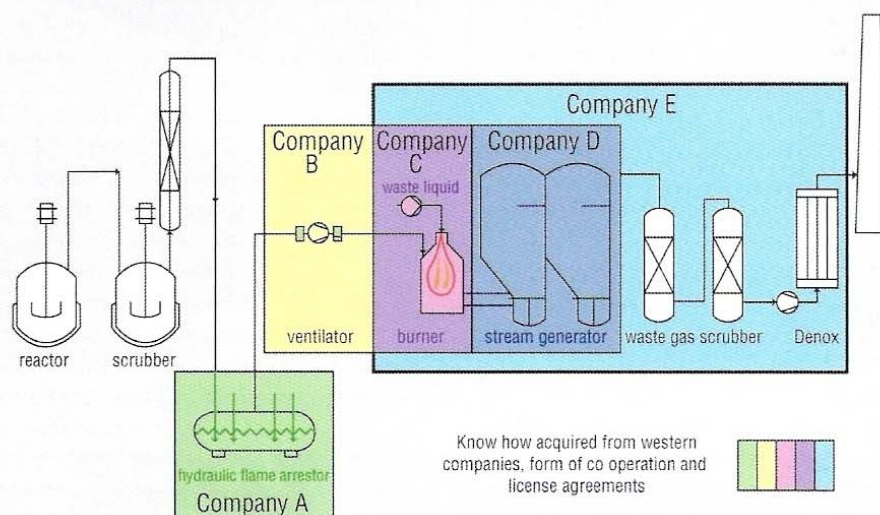


Value engineered waste treatment facility

How Lonza designed a state-of-the-art incinerator in China



Incineration chamber and steam generator with integrated steam blower to clean heat transfer surfaces during operation



Pictures: Lonza Group

Lonza's waste incineration system in Nansha, China, uses the latest available technology from first-class companies in Europe

Treatment of offgases and waste solvents is an important part of the design and operation of an active pharmaceutical ingredient (API) batch plant. Flow-rate and composition of both gaseous and liquid wastes tends to be very variable. This variability, and the need to avoid cross-contamination, makes solvent recovery economically unviable.

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Instead, the preferred way to handle variable offgases and waste streams from API plants are incineration with integrated heat recovery, and flue gas treatment. This is the design philosophy behind a state-of-the-art incinerator system for waste gases and liquids at Lonza's API plant in Nansha, China.

Lonza Engineering has analyzed waste gas amounts and compositions from standard API batch reactor systems (10–16 m³) operated by Lonza around the globe. The resulting portfolio of data allowed the company to create a user requirement specification (URS) setting out the basic design figures for the Nansha incineration plant (see table).

Water content in liquid feed	Nominal offgas flowrate (1,400 m ³ /hr)	<1,500 kg/h
	Reduced offgas flowrate	<2,000 kg/h
Calorific value	Nominal	18 MJ/kg
	Maximum	43 MJ/kg
Thermal capacity	Nominal	7.2 MW
	Bromine	0.83 % wt
Calculated on a nominal calorific value, component concentrations that cannot be exceeded	Chlorine	4.16 % wt
	Fluorine	0.42 % wt
	Phosphorus	0.08 % wt
	Sulfur	4.16 % wt
	Nitrogen (organic)	12.5 % wt
	Ash	4.16 % wt

Partners and contributors

To create a complete incineration plant, the Lonza Engineering team chose technology and services from a number of partners. Their aim was to come up with the best possible design in terms of emissions performance, safety and reliability, while sourcing as much as possible of the equipment in China.

The same philosophy underpins waste treatment systems designed by Lonza Engineering for other clients. Drawing on the parent group's extensive experience in manufacturing APIs, and a commitment to handle waste safely and responsibly, Lonza Engineering designs and creates plants with:

- proven design, based on Lonza's own know-how and that of its licensing partners;
- more than 90 percent of the value purchased locally;
- full compliance with local regulations;
- "localized" design and licensed design; and
- inspection and approval by licensors.

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