HAZARDOUS WASTE INCINERATION

CUSTOM ROTARY KILN INCINERATION SYSTEM

An environmental and waste management services company in the Kingdom of Saudi Arabia required a system to treat chemical wastes including hazardous liquid, solid and sludge.

Verantis designed a complete combustion system that used a rotary kiln for primary combustion of bulk and packaged solid waste, sludge, and liquid waste and a secondary combustor capable of burning liquid waste. Diesel oil, or fuel grade energetic liquids is used as an auxiliary fuel in both combustion chambers. The rotary kiln is rated for a maximum heat release of 62 MM Btu/h. The refractory-lined kiln is tapered in the feed-end. The kiln is 13.5 meters long and has a total volume of 190 m³. It is designed with a slope of 2° from horizontal and equipped with a variable speed drive. Design conditions will allow the kiln to process from 8-60 metric tons of waste per 24-hour period, depending on the physical and chemical properties of the waste. The kiln is designed to operate between 0.1 and 1.2 rpm for a solids residence time between 14 and 170 minutes. The secondary combustion chamber (SCC) is a vertical cylindrical chamber having dimensions of 5,100 mm inside diameter and 8.0 meters length. The SCC designed is based on a minimum two seconds residence time of the flue gas.

A wet drag-type conveyor located under the SCC removes ash/slag generated in the incinerator. The kiln is provided with a “pooling section” at the discharge by decreasing the internal diameter by 200 mm. This provides that ash and slag produced have sufficient residence time to ensure complete melt and mixing when operating the incinerator in slagging mode.

OVERVIEW

Project included supply of all civil works, installation of all electrical and supply of mechanical equipment.

EQUIPMENT

Verantis designed and supplied all equipment for a complete incineration system with tank farm, feed systems and all associated utility connections.

AUXILIARY EQUIPMENT

The civil works included a total of 1,190m³ concrete foundations, a control room building, one MCC building and one building for compressors and a backup generator. A fire protection system with hydrants and nozzles was also provided.
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TECHNICAL CAPABILITIES
All parts of Incineration and air pollution control systems were designed in-house. System components were sourced through a world-wide network of fabricators and suppliers.

FEATURES

- Solutions provided for an environmental and waste management services company in the Kingdom of Saudi Arabia.
- Designed a solution to treat chemical wastes including hazardous liquids, solids and sludge.
- Verantis design/build services included a two-stage acid gas scrubber including a wetted approach, fixed throat quench chamber, followed by a spray tower packed bed absorber. Induced draft fans for up to 110,947 Am³/hr. of flue gas that is exhausted through a 40 meter high stack equipped with CEMS for monitoring flue gas from Incineration system.
- Verantis was able to meet or exceed strict specifications and provided a unique solution that discharged no water into the environment.

For more information and resources, please visit www.verantis.com.
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TECHNICAL CAPABILITIES
Systems can be designed to accommodate a variety of requirements including NFPA, and regulatory codes such as Chinese GB, European EN and US EPA standards.

TURNKEY SOLUTIONS
Verantis is able to provide Turnkey Solutions globally for most of your incineration and pollution control needs. For more information on any of our production or solutions, please visit us at www.verantis.com