

planteo

CORPORATE INFORMATION



CONVERT EVERY COMBUSTIBLE WASTE TO FUEL

Philippine, Quezon



Jebel Ali, Dubai



Tokyo Super Eco Town





代表取締役社長 勝井 征三
Seizo Katsui, President & CEO

ALL OUR ENGINEERS ARE ENVIRONMENTAL CHALLENGERS

We are trying to reduce the environmental load as participants in a recycling society.



Mr. Katsui, CEO of Plantec has been investigating the stable combustion on refuse incineration plant for a half century and finally developed unique and original incinerator "Vertical Incinerator". He received the decoration (Medal of Honor with Yellow ribbon) in 2008, from The Emperor of Japan, for his great contribution to the field of the refuse incineration technologies.

SALUTE

Seizo Katsui, President & CEO

Since its establishment in 1967, Plantec Inc. has created many original technologies through untiring research and development for over 40 years. Under the management philosophy of "We are all engineering challengers for the global environment", we have totally concentrated on the environmental plant engineering business.

The first order we received was an incineration plant for Quezon City in Manila metropolitan area in the Philippines, which was the large urban refuse incineration plant with power generating equipment and had the capability of handling 300 tons of refuse per day and generating 2,500kW of power per hour. At that time, many major plant manufacturers in Japan introduced technology from Europe and this project was therefore very noticeable and gained high praise in the industry.

Since then, Plantec Inc. has supplied 140 plants in Japan and obtained over 100 patents and utility model registrations both in Japan and overseas. In 2000, we were awarded the Prize for Meritorious Science and Technological Promotion by the Director-General of the Science and Technology Agency.

I, as a developer of Vertical Incinerator, was awarded Medal of honor with Yellow ribbon by the Emperor in 2008 honoring my achievement that I have pursued the development of technology in the waste business field for a long time. I'm very flattered and honored to receive this award.

HISTORY OF TECHNICAL DEVELOPMENT

Outline of main technical developments and major orders

- 1967 Plantec Inc. established at Osaka.
- 1968 Receives an order for 300tons/24hours general waste incinerator with 2500kW/hour waste fuel power generator installed in Quezon in the Philippine.
- 1971 Receives an order for the first domestic general waste incinerator (150tons/24hours throughput capacity). Since then Plantec Inc. has installed approx. 140 incineration plants.
- 1989 Starts the development an incinerator dedicated to treatment of medical waste.
- 1993 Receives an order for the first Vertical Incinerator from Kyoto University Hospital.
- 2002 Won the Science and Technology Agency Director-General Award in 2000 evaluated as the most advanced incinerator for infectious medical waste.
- 2006 Receives an order for Vertical Incinerators dedicated to medical waste with waste fuel power generator for Super Eco-town Project of Tokyo Metropolitan Government.
- 2007 Vertical Incinerator for Super Eco-town Project of Tokyo Metropolitan Government is completed.
- 2008 Receives an order for Vertical Incinerator dedicated to medical waste for Dubai Municipality, UAE in associated with Mitsubishi Corporation.
- 2009 Vertical Incinerator completed for Dubai Municipality.

BUSINESS LINE

- Waste heat boiler and waste-to-energy Plant
(General waste, industrial waste and medical waste treatment plant)
- Vertical stoker incinerator [Vertical Incinerator]
(General waste, industrial waste and medical waste treatment plant)
- Bag-house dust collector [Pre-coated Bag Filter]
- Advanced exhaust gas treatment plant for incinerator
- Incineration ash and fly ash melting furnace
- Improvement for existing incineration plant
- Periodical maintenance and modification for existing incineration plant
- Planning, estimation, design, manufacturing, construction and maintenance for various waste recycling facility and various environmental related plant



The Vertical Incinerator is the best for incineration and heat recovery from wide range of waste including general and industrial waste.

The Vertical Incinerator in Tokyo super eco-town project as the largest medical waste incinerator equipped with power generator in Japan is stably operating, and Kyoto university hospital medical waste incinerator is the first The Vertical Incinerator completed in 1994 is stably operating with its initial performance. Dubai medical waste incinerator in Jebel Ali has been completed in 2009.



The Vertical Incinerator has been adopted for Super eco-town plant in Tokyo.

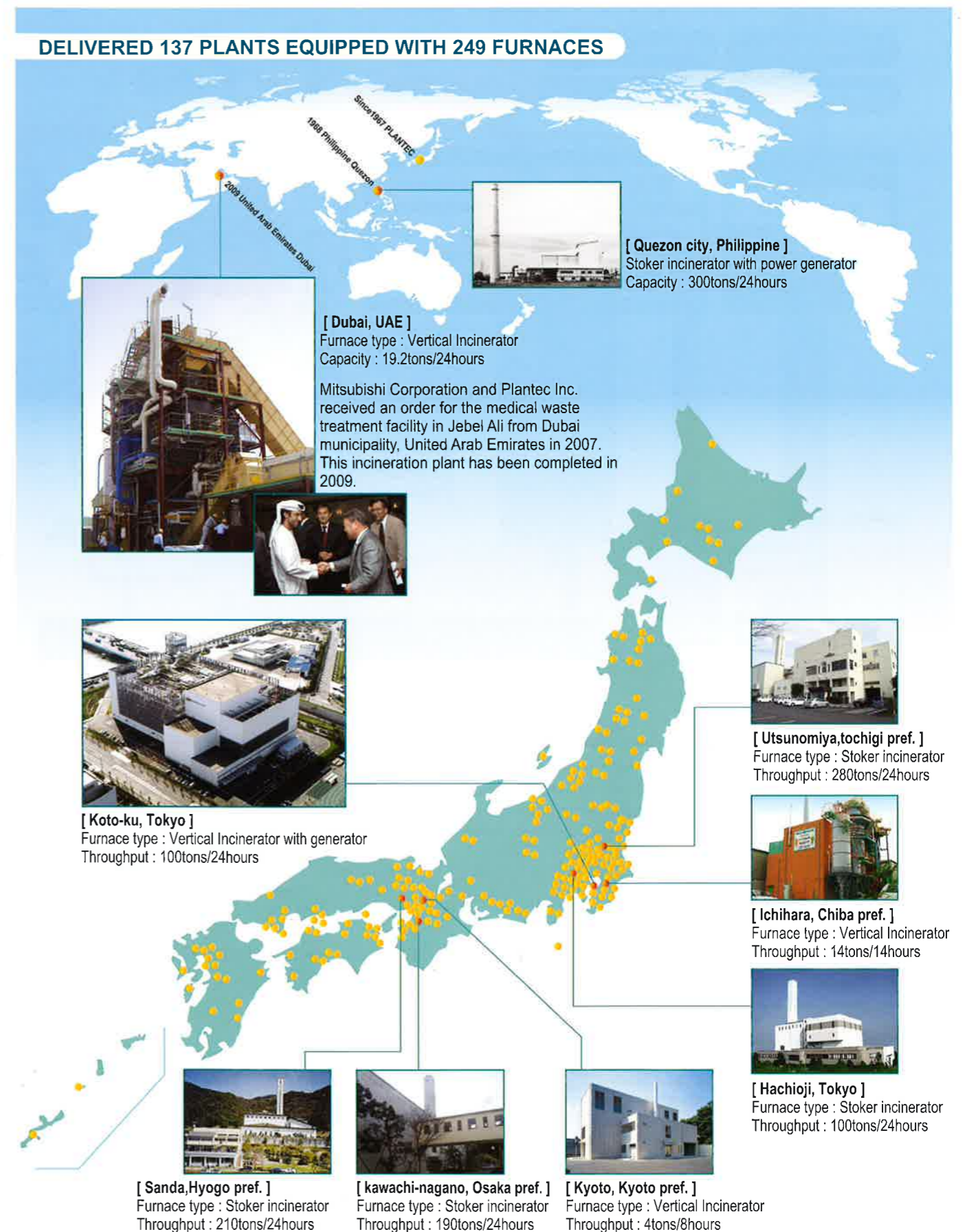
CORPORATE PROFILE

NAME	plantec Inc.
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URL	http://www.plantec-kk.co.jp
E-mail	infopt@plantec-kk.co.jp (for Head Office) tokyo@plantec-kk.co.jp (for Tokyo Branch Office)
LINE OF BUSINESS	<ul style="list-style-type: none"> ·Waste heat boiler and waste-to-energy Plant (General waste, industrial waste and medical waste treatment plant) ·Vertical stoker incinerator [Vertical Incinerator] (General waste, industrial waste and medical waste treatment plant) ·Bag-house dust collector [Pre-coated Bag Filter] ·Advanced exhaust gas treatment plant for incinerator ·Incineration ash and fly ash melting furnace ·Improvement for existing incineration plant ·Periodical maintenance and modification for existing incineration plant ·Planning, estimation, design, manufacturing, construction and maintenance for various waste recycling facility and various environmental related plant
INCORPORATION	October 4, 1967
CAPITAL	100,000,000 yen
BANK ACCOUNTS	Bank of Tokyo-Mitsubishi UFJ, Uehonmachi Branch (Osaka), Mizuho Bank, Umeda Branch (Osaka)
DIRECTORS	Seizo Katsui, President & CEO Motoaki Katsui, Director Hiroshi Isotani, Director Chikashi Iwamura, Operating officer Teruhiro Araki, Operating officer Yoshihiko Hori, Operating officer Taihei Takamatsu, Operating officer Satoru Togo, Operating officer Haruyuki kakiuchi, Operating officer
BODIES THE COMPANY BELONGS TO	Osaka Chamber of Commerce, Kansai Employers' Association, National Urban Cleaning Conference, Institution of Wastes, Pollution Prevention Association, Resource Recycle System Center, Medical Refuse Institution, Japan Medical Welfare Facilities Association, Environmental Technology Research Institution, Environmental Issues Study Group, Osaka Science and Technology Center, Japan Environmental Facilities Manufactures Association etc.
AFFILIATED COMPANIES	Daikan Industry Co., Ltd., Osaka Integrated Design Co., Ltd., and Biken-yaku Co., Ltd.
ISO AUTHORIZATION OBTAINED	 FM85838 / ISO 9001:2008

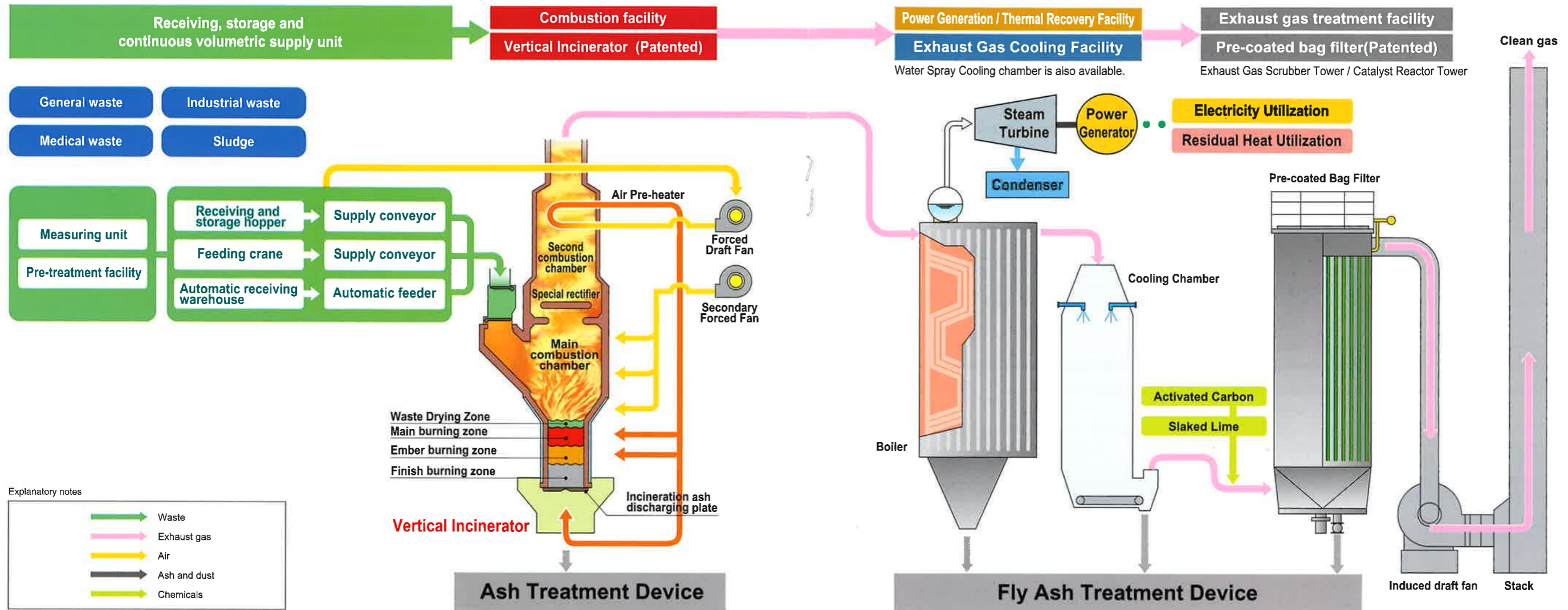
ORDER AND DELIVERY RESULTS

Incineration plants more than 1ton/day (Max. 300tons/year) throughput are described in map.

DELIVERED 137 PLANTS EQUIPPED WITH 249 FURNACES



SYSTEM FLOWCHART FOR WASTE DISPOSAL BY INCINERATION

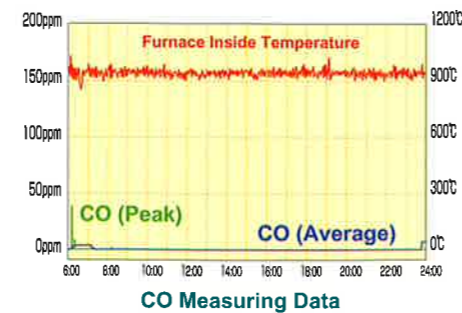


PRODUCT OUTLINE

Vertical Incinerator is simple construction and very unique in design. With conventional stoker incinerator, the surface only burns while waste is moving horizontally. Meanwhile, because thermal efficiency in the vertical direction is very high, Vertical Incinerator can incinerate waste completely. Special Rectification Device is installed in the furnace for high efficiency combustion, and the ash discharge device is also installed to discharge main ash automatically.

EXTREMELY LOW EMISSION LEVEL

- High Thermal Efficiency & Stable Combustion
- Low Content of CO and Nearly Zero Dioxin
- Reduce CO₂ w/o Auxiliary Fuel
- Two-stage Combustion system :
Pyrolysis gas derived by control combustion of waste is burned perfectly



BEST FOR THERMAL RECYCLING

Wide range of waste can be combusted as fuel.

- Stable Combustion
- Optimum Combustion by control & Two-stage System
- Few Fly Ash
- No Moving Parts inside Furnace & Easy Operation

APPLICABLE FOR VARIOUS WASTE



General waste and/or Industrial Waste

Mix combustion of general waste and industrial waste is also available.

Low Calorie Waste

Low calorie waste after plastic separated can be combusted.

High Moisture Sludge

Sludge, 82% of moisture and 54% of mix ratio, can be combusted with other waste.

Drying treatment is not required

Medical waste

Dedicated combustion of medical waste that is most difficult to treat thermally is available.

WASTE-TO-ENERGY

(reference data)

300tons/24hours General Waste

Generate 3,000kW (150tons/24hours × 2units)

CO₂ Reduction 14,000tons/year *Operation Condition : 280days/year

Thermal Power Generation CO₂ Emission Factor:0.69kg-CO₂/kWh (Data of Central Environmental Council,Earth Environmental Panel 2001)

THE UAE'S FIRST AND LARGEST INCINERATOR DEDICATED TO THE TREATMENT OF INFECTIOUS MEDICAL WASTE

BACKGROUND OF THE FACILITY

- The facility has been completed in April 2009 to treat infectious medical waste discharged from Dubai Health Care City which will be the base of advanced health care industry in Middle East.
- ETA Star Group has signed a contract with Dubai Municipality to build a state-of-the-art incinerator to ensure properly and environment-friendly treatment of infectious medical waste in association with Mitsubishi Corporation and Plantec Inc. of Japan.

FEATURE OF THE FACILITY

- The UAE's first largest incinerator dedicated to treatment of infectious medical waste.
- Medical waste is hard to treat since they contain infectious microbes and very in calorific value. Plantec's Vertical Incinerator can stably treat infectious medical waste without secondary infection, and also meet the strict emission regulation.
- Plantec developed Vertical Incinerator has adopted evaluated as many achievements and advanced technology in waste treatment field.

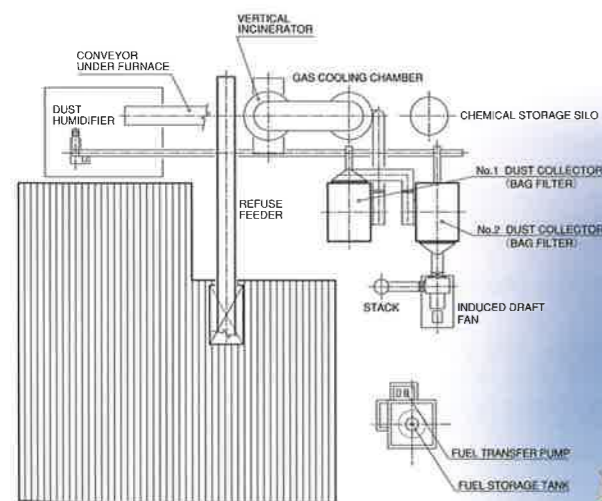
EMISSION CRITERIA

The strict emission regulation listed below is applicable to the facility.

- Dioxins : 0.1ng-TEQ/Nm³
- Total suspended particulate : 10mg/Nm³
- Sulfur dioxides (as SO₂) : 50mg/Nm³
- Hydrogen chloride (HCl) : 10mg/Nm³
- Nitrogen oxides (as NO₂) : 200mg/Nm³
- Carbon monoxide : 50mg/Nm³

OUTLINE OF THE FACILITY

- Type of waste : Infectious medical wastes
- Throughput capacity : 19.2tons/24hours X 1unit
- Type of furnace : Vertical incinerator
- Exhaust gas cooling system : Water jet
- Exhaust gas treatment system : Pre-coated Bag Filter (Dual type)



THE LARGEST WASTE-TO-ENERGY INCINERATOR TREATING INFECTIOUS MEDICAL WASTE IN JAPAN

BACKGROUND OF THE FACILITY

- Infectious medical waste dedicated incinerator was built in Super Eco-plant owned by Tokyo Water Front Recycle Power (TRP) in order to contribute the goal of Tokyo Metropolitan Government (TMG) waste treatment project.
- This facility ensures the regional waste disposal of infectious medical waste in the Greater Tokyo Area.

FEATURE OF THE FACILITY

- The largest infectious medical waste incinerator equipped with waste fuel power generator in Japan.
- Vertical Incinerator employing distinctive combustion technology has been adopted to stably treat infectious medical waste.
- Advanced exhaust gas treatment facility including Pre-coated Bag Filter greatly reduces the emission of harmful gas.

EMISSION CRITERIA

The strict self-imposed emission regulation listed below is applicable to the facility.

ITEM	SELF-REGULATION VALUE	MEASURING VALUE
Dioxins	0.05ng-TEQ/Nm ³ (O ₂ 12%dry)	0.000082ng-TEQ/Nm ³ or less
Total particulate	0.01g/N m ³ (O ₂ 12%dry)	0.001g/N m ³ or less
Sulfur oxides	10ppm (O ₂ 12%dry)	0.5ppm or less
Hydrogen chloride	10ppm (O ₂ 12%dry)	0.5ppm or less
Nitrogen oxides	30ppm (O ₂ 12%dry)	9ppm
Carbon monoxide	30ppm (O ₂ 12%dry) [4 hours rolling average]	7ppm

OUTLINE OF THE FACILITY

- Type of waste : Infectious medical waste
- Throughput capacity : 100tons/day (50tons/24hours X 2 lines)
- Type of furnace : Vertical Incinerator
- Exhaust gas cooling system : Boiler (Waste fuel power generation)
- Exhaust gas treatment system : Pre-coated Bag Filter, wet scrubber and catalytic reaction tower



Boiler (Economizer)

Steam drum



Pre-coated Bag Filter



PRE-COATED BAG FILTER FOR INCINERATION PLANTS

Incineration treatment which can be reduced the volume of waste has been developed as the most efficient method in Japan. Meanwhile harmful substances such as particulates, acid harmful gases (as Hydrogen chloride, Sulfur oxides, etc.), heavy metals (as Mercury, Lead, Zinc, etc.) and Dioxins are contained in the exhaust gas generated in waste incineration. Therefore the facility which can be safely and efficiently removed them is required. Especially high-efficient removal provision is recently required because the emission regulation for Dioxins has tightened year by year.

FEATURE OF PRE-COATED BAG FILTER

Effective for harmful substances which is hard to eliminate

The contact efficiency between exhaust gas and chemicals is very high because chemical sedimentary layers on a bag are adequately thick. Therefore harmful substance such as Dioxins, Hydrogen chloride, etc. can be efficiently eliminated.

Reduces operating cost

Used amount of chemicals can be reduced by an improvement in the contact efficiency.

Extends the service life of a bag

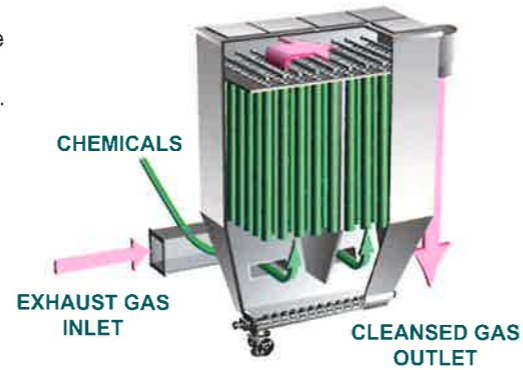
The service life of a bag can be widely extended because pre-coated layers prevent the direct attack by particulates and mist.

Effective for the batch operation

By pre-coating chemicals to a bag shortly before operation shutdown, harmful substances in exhaust gas can be removed at fire stock.

Reduces the volume of fly ash to the landfill

Pre-coated Bag Filter minimizes the amount of the dust discharged from the bag filter, therefore disposed cost to the landfill can be reduced and also the landfill life extension can be contributed.



Reference data of the existing Vertical incinerator

ITEM	DIOXINS	ITEM	DIOXINS	REMOVAL RATIO
Inlet particulate	0.18	Outlet particulate	0.0000005	99.99%
gas	0.14	gas	0.00013	99.99%
(ng-TEQ/Nm ³)				

COMPARISON BETWEEN PRE-COATED BAG FILTER AND CONVENTIONAL BAG FILTER

ITEMS	PRE-COATED BAG FILTER	CONVENTIONAL BAG FILTER
Bag surface condition		
Condition after bag cleaning	Pre-coat is performed by spraying constant volume of chemicals quickly after bag cleaning, therefore a bag is protected and clogging or blowing up of a bag can be prevented, and harmful material in exhaust gas is also removed shortly after bag cleaning.	A bag is not protected long time after bag cleaning till sedimentary layers are formed, therefore the removal efficiency of harmful gas degrades due to the blow-up of the polluted dust or gas and increase of exhaust gas velocity.
Chemical supply system	Form pre-coated layers on a bag by spraying chemicals quickly after bag cleaning. Chemicals are not spraying during the normal operation.	Chemical is spraying continuously into the exhaust gas during the operation.
Chemicals	Slaked lime and Activated carbon	Slaked lime and Activated carbon
Bag cleaning timing	Bag cleaning is performed when pressure difference of a bag or hydrogen chloride gas concentration at the outlet of the bag filter exceeds the limit.	Bag cleaning is performed when pressure difference of a bag exceeds the limit.

PATENTS AND AWARDS

As well as **Vertical Incinerator** patents and the Meritorious Science and Technological Promotion by the Director-General of the Science and Technology Agency award, the system has obtained many patents and utility model registrations in Japan and overseas.



Patents and Awards
Plantec obtained a patent for Vertical Incinerator and won many awards such as the Science and Technology Agency Director-General Award.
Plantec has also obtained many patents in Japan and overseas.

The first Vertical Incinerator for Kyoto university hospital

The first Pre-coated Bag Filter for Okuaga clean center

AWARDED THE MEDAL OF HONOR WITH YELLOW RIBBON BY THE EMPEROR

Mr. Katsui, CEO of Plantec received an award honoring his achievement pursuing original development of the Waste Treatment Technology for 50 years and the development in Vertical Incinerator in spring 2008.



WON THE SMALL AND MEDIUM ENTERPRISE AGENCY DIRECTOR-GENERAL AWARD

Plantec receive the Small and Medium Enterprise Agency Director-General Award at the 33rd Excellent Environmental Equipment Awarding Ceremony held by the Japan Society of Industrial machinery Manufactures in 2007.



WON WASTEC GRAND PRIX IN NEW TECHNOLOGY DIVISION

Vertical Incinerator for infectious medical waste won Wastec Grand Prix in New Technology Division evaluated as unique and advanced technology held by the Wastec Execution Committee in 2006.



WON THE SCIENCE AND TECHNOLOGY AGENCY DIRECTOR-GENERAL AWARD

Vertical Incinerator and Pre-coated Bag Filter won the Science and Technology Agency Director-General Award in 2000 evaluated as the most advanced incinerator for infectious medical waste.





Visit Plantec Inc. Homepage below to see the product details:

<http://www.plantec-kk.co.jp>

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