



EXTRACT

COMPENDIUM OF TECHNOLOGIES FOR TREATMENT / DESTRUCTION OF HEALTHCARE WASTE

Maintenance

See Section 11.3.5.8.

Job Potential

The Sanitec system requires an operator and is fully automated. Job potential is low.

Locations where Technology is in Operation

The first Sanitec system was installed in 1990. Sanitec units are in operation in many states in the United States, as well as in Brazil, S. Korea, Philippines and other countries. An estimated 500 tons per day of healthcare waste are treated by Sanitec units worldwide.

Cost Estimates

See Section 11.5.3.

Special Features

The computer control includes a strip chart that provides a permanent record of the process parameters.

Parameters for Specification

Required capacity, electrical specifications

Photographs



L-R: Cart automatically loaded into the Sanitec system, two Sanitec systems operating side-by-side

Vendor Information

The technology was originally developed in the late 1980s by Asea Brown Boveri and was subsequently taken over by Sanitec, Inc. (New Jersey, USA) which began manufacturing the system in 1990. Since then, the system has been installed worldwide.

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12.6 FRICTIONAL HEAT TREATMENT SYSTEMS

12.6.1 **NEWSTER**

Type of Technology

Frictional heat treatment system

Process Description

The Newster technology utilizes frictional heating supplemented by resistance heaters to heat the waste up to about 150°C while shredding it into a dry powder. The sterilization process is also aided by the addition of sodium hypochlorite. A high-speed rotor operating at two speeds—1300 to 2800 rpm—is used. The first part of the treatment employs moist heating by steam generated by the rotor causing the waste to reach a temperature of 100°C. The steam and other vapors generated pass through heat exchangers and filters to condense steam and filter the air before being released to the environment. When all the fluids have evaporated, the waste continues to be heated to dry superheated conditions. The waste is kept above 135°C up to 150°C for several minutes to achieve sterilization. The whole process takes place at atmospheric pressure. The residue is an odorless, dry product resulting in an average 70-75% volume reduction and 20-25% mass reduction. The system uses a programmable logic controller.

Types of Waste Treated

See Section 11.3.6.2.

Range of Capacities

Model	Capacity	
	Liters per cycle	Kg per hour
Newster 5	100	15
Newster 10	130	30

A typical cycle is 30 minutes.

Pathogen Destruction

See Section 11.3.6.4.

Emissions and By-Products

See Section 11.3.6.5.

Operation

After the waste is fed into the system, the operator starts the motor at a low gear. After several minutes, the machine goes into the higher gear and continues to rotate until all the moisture is released and the waste reaches 120°C. The heaters are then turned off but the waste is allowed to increase in temperature to about 150°C. The motor is then put on a low gear and water is added to cool the waste to 95°C. After waiting a short period to allow the water to evaporate, the waste is allowed to discharge for about two minutes. At the end of the cycle, the controls are turned off.

Installation

Installation requires electrical connections, water supply, drain, and vent for the vapor. Newster provides examples of installation layouts.

Maintenance

See Section 11.3.6.8. Newster provides daily, monthly, quarterly, semi-annual and annual maintenance procedures.

Job Potential

The Newster system requires an operator and is automated. Job potential is low.

Locations where Technology is in Operation

As of January 2011, there were 223 Newster units in operation in Albania, Azerbaijan, Belarus, Brazil, Bulgaria, Croatia, Dominican Republic, Egypt, Estonia, Greece, Hungary, Iran, Italy, Kazakhstan, Paraguay, Poland Romania, Russia, and Tunisia.

Cost Estimates

See Section 11.5.3.

Special Features

Newster offers waste containers, waste bin washer boxes with germicidal UV, and wastewater treatment and air purification systems.

Parameters for Specification

Required capacity, electrical specifications, accessories

Photographs



L-R: Newster 10, Newster 5, close-up of the treated waste

Vendor Information

Newster Srl was formed in 1996. It is certified by UNI EN ISO 9001 2008. Newster’s partner, Tecno Service First Srl (Serravalle, Republic of San Marino), deals with research and development. In addition to Italy, Newster has affiliates and subsidiaries in Belarus, Brazil, Bulgaria, Croatia, Dominican Republic, Egypt, Estonia, Greece, Hungary, Iran, Kazakhstan, Paraguay, Poland, Romania, Russian Federation, Tunis and Uruguay.

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12.6.2 OMPECO

Type of Technology

Frictional heat treatment system

Process Description

The OMPeco technology combines frictional heating and internal shredding to produce a dry, odor-free waste with a 70% volume reduction and 30% mass reduction. The process takes place in about 30 minutes. The larger units consist of an automatic waste bin loader, sterilization chamber or cell containing rotor blades at the bottom, valves for water injection and waste discharge, pumps for vapor extraction, filter and condenser, and a heat exchanger. Vapors and condensate are filtered. The system is fully enclosed and controlled by a programmable logic controller.

Types of Waste Treated

See Section 11.3.6.2. The OMPeco Converter H series handles a wide range of waste including sharps waste, bandages, diapers, gloves, catheters, probes, small plastic and glass bottles, filters, food waste from isolation wards, cultures, surgical waste including not easily recognizable anatomical parts, small animal carcasses, gowns, glass, metal, paper, pillows, etc. The Converter can handle large volumes of blood. Other models treat municipal, animal and maritime waste.

Range of Capacities

Model	Capacity
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