

WasteDoctor™

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WasteChef™

-

WasteClinic™

-

WasteBase™

-

WasteMaster™

products of:



Consolidated
Waste Management

Waste Treatment Solutions



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Introduction



Consolidated Waste Mgmt. Pvt. Ltd. (CWM)

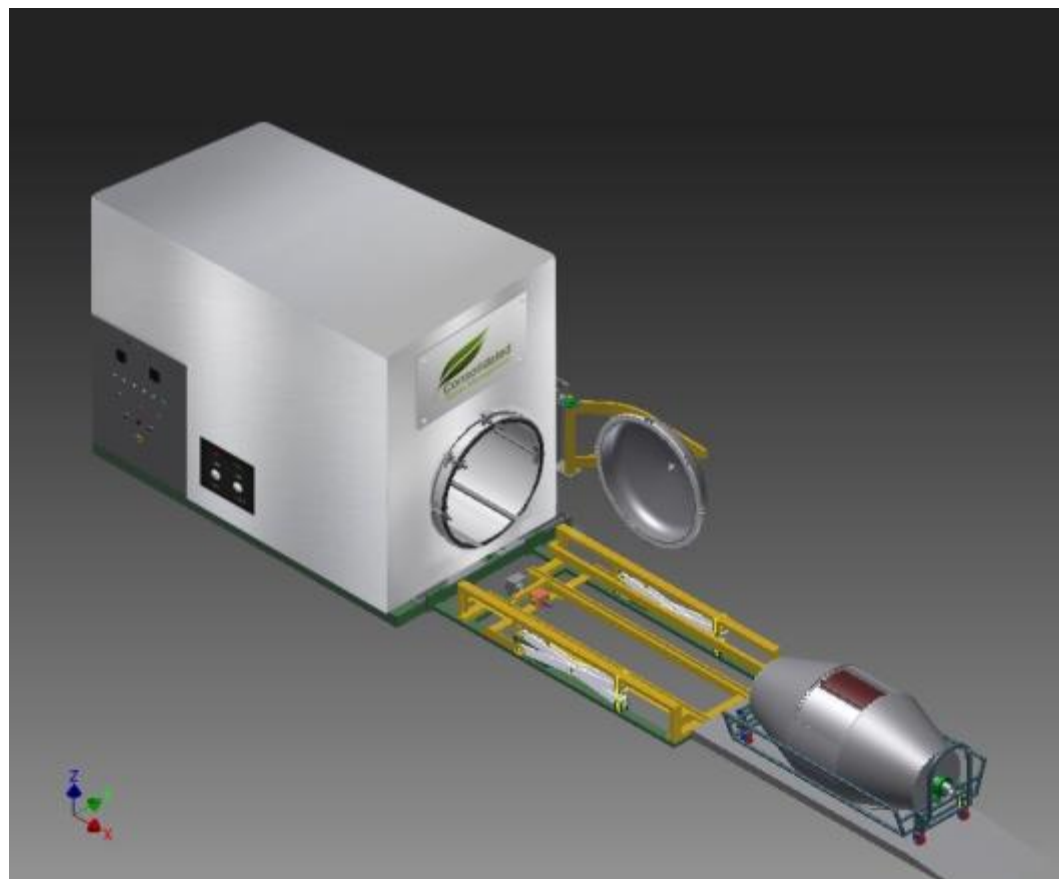


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- CWM was incorporated in September 1997 & was one of the initiators of the process which led to formation of the Biomedical Waste (Management & Handling) Rules, in India, in 1998.
- CWM offers products, research, consultancy & training services to health care professionals, institutions & government bodies in all aspects of safe handling & disposal of solid waste.
- The patented technology that CWM offers, represents the culmination of over 10 years of experiences in operating, problem solving & troubleshooting in the waste management industry.
- Along with CWM's drive to succeed & define itself within the Waste Management Industry, we believe our products will redefine the way hospitals, hotels, and other large businesses manage their waste.



CWM's Product Range & Strategic Innovations (Externals)





CWM's Product Range

- CWM offers four product ranges whose design & operation is best suited to a number of end users:
 1. WasteDoctor™ - is designed to suit the requirements of hospitals that treat their waste internally prior to dispatching the treated waste to municipal waste facilities.
 2. WasteChef™ - is designed to suit the hospitality industry, such as large hotels & food production & processing facilities. The canister design & operation has been tweaked to best suit the high moisture content of food waste.
 3. WasteClinic™ - is designed to be mounted onto a standard road truck, which allows the machine to be transported around city streets or from one village to another in rural areas of our country, in order to sterilise & treat smaller waste quantities across a larger footprint.
 4. WasteBase™ - is exclusively for municipalities with centralised waste treatment facilities & although similar to the above products, is designed to a scale that can efficiently handle large quantities of commingled waste & additionally has higher levels of automation in order to reduce worker strains & improve operational efficiencies.
 5. WasteMaster™ - designed to take advantage of the self-generation of steam, electricity & water on large marine vessels, the technology is adapted to treat food and other waste on a ship before it even makes port, greatly reducing port fees for waste removal.

Strategic Innovations



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- CWM's new range of products are a textbook example of Strategic Innovation. CWM is a company moving towards a unique product design & industry solution, in order to clearly define itself as a leader in Best Practices for Waste Management.
- CWM's waste management products feature four key aspects to their design that set them apart from competitors & alternative technologies:

1. The Patented "Removable Rotating Canister"
2. The Thermic Fluid Boiler System
3. The Patented "Integrated Dehydration System"
4. The Radiator Fan Cooling System

Strategic Innovations... Rotating Canister



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- The “Removable Rotating Canister” is the key product innovation’. The canister is the feature that makes products like the WasteDoctor™ a waste management solution rather than a component of an overall system.
- The canister is mounted on its own cradle with a manoeuvring handle and wheels that allow the canister to replace traditional waste containers that are placed in various wards around a hospital facility.
- Waste is simply filled into the top loading canister, & once the canister has reached its prescribed maximum fill, it is easily & without ANY potentially hazardous contact with the waste itself, wheeled to the location of the WasteDoctor™ & is placed into the sterilising chamber along with the cradle & handle. What this further allows for is a guarantee of sterility of ALL the elements of the waste collection & treatment system.

Strategic Innovations... Rotating Canister... 2



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- The canister, which rotates when placed into the chamber, is automatically fixed into its upright loading position when not in the waste treatment facility, further ensuring there is no risk of mistakenly offloading any waste when in use around the hospital.
- A further benefit to the canister design is the protection of the waste treatment chamber itself from any corrosive waste that will be disposed of. The canister, along with many of the internal parts across the product range are made with high-grade Stainless Steel, which as per tests conducted in partnership with The Tata Memorial Cancer Centre, greatly resists corrosion.
- Should any corrosion ever develop over its many years of use, the canister is a reasonably affordable part of the waste treatment system, which can be easily replaced, with ZERO downtime of the waste treatment facility. This benefit is of key importance for hospital facilities that treat their own waste internally.

INTERNAL MECHANISM



Strategic Innovations... Thermic Fluid System



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- Our products have primarily been designed to operate using Thermic Fluid as the heat generating mechanism. The advantages to this system are:
 1. More than 20% greater energy efficiency over typical steam boilers.
 2. Virtually no maintenance requirement as it is a closed loop system whereby the thermic fluid itself encircles the main chamber through the coils that are ribbed around the chamber.
 3. Greater retention of heat that allows the system to grow even more efficient throughout the day as subsequent treatment cycles are run.

Strategic Innovations... Dehydration System



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- Although by virtue of the technologic design of our products, the sterilised waste output is relatively dry to about 15% moisture, our unique patent-pending dehydration system provides for even drier waste output.
- Using a high speed blower, integrated into the thermic heat exchange system & the main chamber, hot air is directly injected into the rotating canister, ensuring complete dehydration of the waste to approximately 5 - 10% moisture.
- The integration of the dehydration system uses the residual heat of the thermic fluid system to heat the incoming air, which further reduces the energy consumption of the machine, while still providing for an additional benefit unique to our products.

Strategic Innovations... Cooling System



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- The Radiator Cooling Fan System was implemented with water consumption & conservation in mind, but has the added bonus of aiding in the controlling of any strong waste odours that may have persisted within the chamber.
- The radiator system allows for the condensing of the steam from within the chamber to pass through a water sump, which absorbs any remaining foul odours that were in the chamber during the sterilisation process. The water is then recycled through the system for subsequent cooling cycles, which significantly reduces the overall water consumption of the machines when compared to other similar products.
- Our products use 90% LESS water than other competitor products (Only 20 Litres for sterilisation, & 20 Litres for the cooling cycle).



Faster – Cost Effective – Better



Faster

- The unique, patent-pending Rotating Canister design represents a transformation in operation efficiency of waste management that is far superior to any technology available today.
- The canister design is a safe and fast means for loading waste into & out of the main sterilisation chamber.
- This means that multiple canisters loaded with waste can be kept ready for a sterilisation cycle, & since the waste is not left loose inside the chamber, there is no issue of cleaning the chamber between cycles.
- Canisters can be loaded & unloaded into the chamber within 2-3 minutes, one after the next, ensuring a continuous stream of waste sterilisation cycles.
- This level of efficiency ensures that the operation of any given facility is smooth & hassle free.
- Once a canister has been treated, the simple release of a latch allows for the canister to rotate upside down, & all the treated waste can be discharged into a bin or passed through a shredder.



Cost Effective

The technological advancements ensure that the efficiency of the product reflects cost efficiency in its operation as well.

- By using a Thermic Fluid Heat Exchange system instead of a traditional steam boiler, these products have a 20% greater heat generation efficiency, & also require no regular maintenance as is the case with traditional steam boilers.
- Furthermore, the heat energy generated for the sterilisation cycle is not wasted away. The residual heat is used to heat the air for the unique integrated dehydration cycle, ensuring almost 'bone-dry' waste once the full cycle is completed, without wasting energy by having to heat up the air from scratch.
- The sterilisers utilise an innovative radiator cooling system, which is not featured in any competing products. What this allows for is the recycling of water through our system for the cool down stage of our cycles, which means a significant reduction in water consumption. Our products on average use **90%** less water than other competing autoclaves (40L per cycle total).
- A major cost saving is also in the transportation of waste away from the facilities, as once the waste has been sterilised & dehydrated, the volume reduction on average is **80%**, which can directly translate to an **80% saving in transportation cost** of the treated waste. e.g. **Mumbai's Tata Memorial Cancer Hospital's need for trucking fell drastically from 2 dumpsters per day to 1 dumpster per week!**



Environmentally Better

- Consolidated Waste Management is committed to only designing & marketing products that are the most environmentally friendly technologies available. We are uncompromising in our standards to ensure we do our part in safeguarding the environment.
- Massive reductions in waste water using our unique radiator cooling system that reuses the same water several times over instead of flushing fresh water through the system continuously.
- The large saving in transportation costs with the average 80% volume reduction further means a reduction in pollution related directly to the transportation of this waste by trucks.
- By having the ability to segregate the treated waste into plastics, non-combustible solid waste & combustible solid waste, the waste treatment facilities will not only save money & potentially earn from the sale of plastics, but will have a significant positive impact on the environment from day one, as the majority of the waste will be recycled or reused in an eco-friendly manner.



Environmentally Better

- Larger waste management facilities can reasonably expect to see significant cost advantages to using our unique products.
- One of our key goals is to ensure a swift return on investment to our customers, and furthermore, even provide our customers with the potential of transforming their waste management systems from cost centre into profit centres.



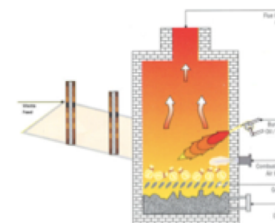
Plastics

Can be separated out and recycled or sold on, which greatly reduces the unnecessary pollutants being exposed to the environment.



Non-Combustible Solid Waste

Can be shredded and then sent to a landfill (Much smaller quantities would require landfilling than non-segregated waste)



Combustible Solid Waste

Can be reused with any existing incinerator in order to burn the waste and create energy to power CWM's thermic fluid system, thereby further reducing energy requirements/ consumption of the facilities



Bottom Line Benefits



Bottom Line Benefits

- CWM prides itself on having created innovative technologies that significantly improve the operational & financial efficiency & viability of our end user's waste management solution:
 1. Significant reduction in transportation costs, as the overall volume of waste reduces by upto 80% for every batch of waste treated.
 2. Substantial energy efficiency with our Thermic Fluid heat exchange system, whose wasted heat energy is re-circulated through the dehydration blower system.
 3. Innovative radiator cooling system that significantly reduces the use of water by re-circulating water through the cooling system.
 4. Highest safety standards by significantly minimising human contact with the waste thanks to the innovation of our rotating canister design.
 5. Fully automated touch screen interface (Lan network connectivity) to ensure precise, recorded results every time & integration into existing computer systems.



In Conclusion



For Our Customers

- Guarantee of Sterility
- Technology of International standards – Global Patent Pending
- Consultation for establishing centralised & in-hospital facilities
- Wide product range – from 25L to 3,000 L approx. capacity
- Other related products are also available (based on hospital requirements) – e.g. shredders, waste carts / trolleys & puncture proof containers, etc
- Installation & operator training included
- Annual Maintenance Contracts (AMC) are offered



END

REFERENCE DATA FOLLOWS



REFERENCE

DATA



**TATA MEMORIAL HOSPITAL
-
THE WORKING CASE STUDY**

Tata Memorial Cancer Centre - Summary



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- 650 bedded Premier Cancer Institute of India
- Yearly Waste Generation – Over 90,000 Kgs
- Replaced inadequate onsite incinerator with the eco-friendly Autoclave supplied by CWM
- Selection panel comprised of: Hospital Administrators & Head of Microbiology, Executive & Assistant Health Officers of the BMC, Members of the W.H.O. & Duke Medical University, USA

Tata Memorial – Proven Success Story



Upon installation
Sept. 1999



Over a decade on
2013



- Total waste treatment cost works out to Rs. 8 per kg of waste treated
- The TMCC machine has a 100% track record with respect to spores testing in over 10 years of operation
- As impressive as the cost savings at TMCC have been, it is worth noting that our newer WasteDoctor™ presents far greater operational & cost efficiency to this now outdated model.





Tata Memorial Hospital – Data 2012

- January – December 2012
- Total waste treated = 92,766 Kg.
- Average daily waste treated = 311 Kg.

Total cost per kg. = Rs. 8 *

<i>Item Description</i>	<i>Amount</i>
No. of loads performed	981
Total quantity of waste treated (Kg.)	92,766
Weight of blood bags treated (Kg.)	3,899
Weight of tissue treated (Kg.)	3,767
Yellow bags weight (Kg.)	86,583
Sharp containers weight (Kg.)	6,183
Weight of empty vials (Kg.)	12,788
Cytotoxic Drugs (Kg.)	592

* Utility Cost Calculation for Mumbai : Rs. 11 per unit of electricity & Rs.16 per 1,000 Litres of water



Tata Memorial Hospital – Data 2013

- January – December 2013
- Total waste treated = 116587 Kg.
- Loads per day = 4
- Average medical waste treated per day = 385 Kg.
- Total no. of loads performed = 1212

Total cost per kg. = Rs. 8

**Utility Cost Assumption: Rs. 11 per unit of electricity & Rs.16 per 1,000 Litres of water*



Consolidated Waste Management® (CWM) was established in 1997 and its Founder was part of the Citizens' Panel deliberating the formulation of the Government of India's Ministry of Environment & Forest's *Biomedical Waste Management & Disposal Rules, 1998*. CWM's installation at the Tata Memorial Cancer Centre (TMCC) in Mumbai as far back as 1999 is a clear instance in which the collection, treatment and disposal of infectious biomedical waste was revolutionised. Due to the steam steriliser's ability to reduce the volume and weight of the waste by 80-85% the results allowed for TMCC to go from filling two x 2-tonne waste dumpsters **per day**, to requiring a *single* 1-tonne dumpster **per week**. It is critical in this modern day for waste solutions positively impact a business or organisation in the and its bottom line. It is also incumbent that the organisation treats its waste responsibly with minimal impact to the environment, thereby reducing its carbon footprint.

Tata Memorial Cancer Centre (TMCC) offers to all cancer hospitals, nationally and Internationally - its expertise in infection control and responsible waste treatment and disposal options. A request needs to be made to the Director of TMCC and copied to the Department Head of Microbiology. Address: Tata Memorial Cancer Centre, Dr. E. Borges Marg, Parel, Mumbai 400 012. Tel: 022 2417 7000



THE END

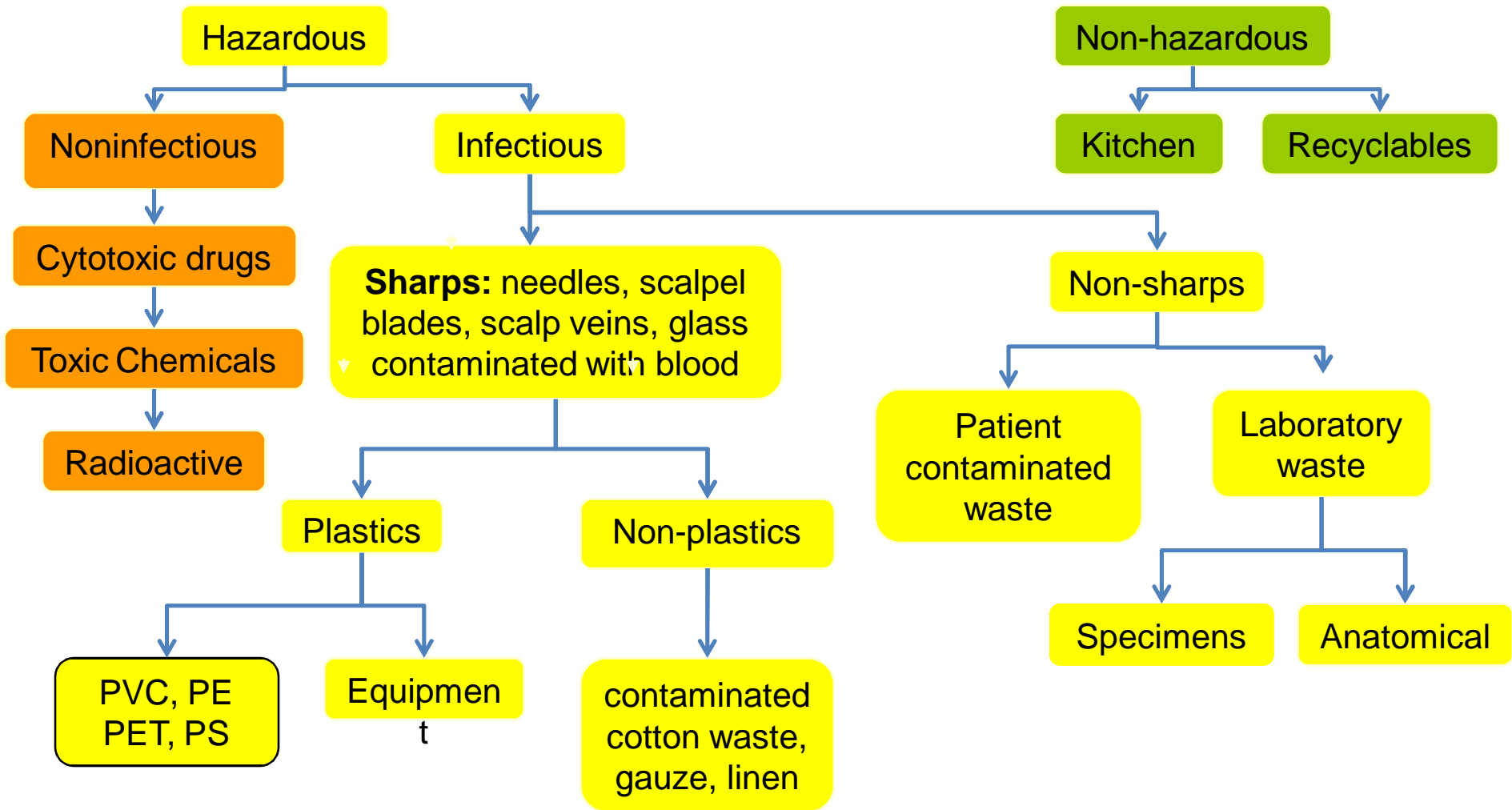
Comparison with other technologies below

Schedule for Waste Treatment Facilities Ministry of Env't & Forests (Notification 1998)



Hospitals & Nursing Homes in towns with population over 3.0 Million	By 31 st December, 1999 or earlier
Hospitals & Nursing Homes in towns with population below 3.0 Million	
a) With 500 beds or more	By 31 st December, 1999 or earlier
b) With 200 beds or more, but less than 500 beds	By 31 st December, 2000 or earlier
c) With 50 beds or more, but less than 200 beds	By 31 st December, 2001 or earlier
d) With less than 50 beds	By 31 st December, 2002 or earlier
All other institutions generating bio-medical waste not included in the above	By 31 st December, 2002 or earlier

Waste Treatment Categories



Treatment & Disposal Options



Category	Waste	Container	Disposal Method
1	Human Anatomical waste	Yellow Bag	Incineration
2	Animal Waste	Yellow Bag	Incineration
3	Cytotoxic Drugs	Yellow Bag	Incineration
4	Microbiology & Biotechnology Waste	Red Bag	WasteDoctor™ / Autoclave
5	Sharps Waste	Puncture Proof Containers	WasteDoctor™ / Autoclave
6	Soiled Waste: dressings, linen	Red Bag	WasteDoctor™ / Autoclave
7	Disposables: tubing, catheters	Red Bag	WasteDoctor™ / Autoclave
8	Liquid Waste	-	Disinfect & drain
9	Incineration Ash	-	Municipal Landfill
10	Chemical waste	-	Disinfect & drain liquids. Solids - Municipal Landfill





Comparison with other alternate technologies

Performance Criteria



Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Weight Change	Average 70 - 80% weight reduction due to dehydration cycle	10% weight gain due to condensate absorption by waste	10% weight gain due to wet steam absorption by waste	Up to 90% weight reduction due to 1000° C temperature
Volume Change	70% reduction without shredding, 85% with	Varying degrees at compaction, no volume reduction without shredding	Pre-shedding required. Up to 85% reduction	Up to 90% reduction
Recognizability /Disfigurement	Strong without shredding - unrecognizable with shredding	Clearly recognizable without shredding - unrecognizable with shredding	Pre-shredded & unrecognizable	Least recognizable, as ash
Decontamination	Highest of all, achieves 6-8 log 10, regardless of waste type	Erratic decontamination at 4 log 10.	Disinfection only at 95 - 100° C. No sterilisation	Dubious sterilisation, at cost of dioxins & furans



Performance Criteria Continued...



Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Performance Data	Decontamination tested with spore vials that run the entire course of waste cycle. Vial removed & incubated for 48hrs in special spore validator provided	Decontamination tested with spore strips. Authenticity dependant on waste load & placement of strips, no guaranteed results under all conditions	Low level disinfection, 4 log 10, due to 100 C temperatures. (121° C temperature for a 30 minute period insisted upon by Central Pollution Control Board, India)	Decontamination assured at the cost of releasing dioxins, furans & VOCs
Operating Complexity	Simple, Mechanical process, electrically controlled, fully automated	Simple Mechanical process Note: pulling of vacuum at infectious stage.	Highly complex mechanism, likely jamming of shredder blades at pre-shredding stage	Extremely complex, though automated
Operator Training	No special skills, single operator feasibility	No special skills but operator error may cause emissions	Extensive training required	High level of skill required



Environment & Permitting Issues



Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Air Emissions	Low volume, nontoxic, dry	Medium volume, steamy air emissions, wet Infectious air at pre-vacuum stage	Medium volume, dry air from pre-shredder compartment which is infectious	Carcinogenic dioxins & furans escape to enter food chain Also present during stack cleaning
Liquid Effluence	Sterilised liquid, suitable for sanitary sewer	Infectious water from pre-vacuum	None	Hazardous liquid waste
Permitability	Easily permitted, exceeds world standards	Generally permitted, except some Canadian Provinces, US states, Mexico, where minimum 6 log 10 required	Generally permitted, except some Canadian Provinces, US States, Mexico, where minimum 6 log 10 required	Under pressure the world over, small percent of waste permitted for incineration



Occupational Health & Safety



Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Safety Issues	No exposure to infectious organisms and / or contaminants	Exposure to infectious organisms possible at pre-vacuum stage	Exposure to infectious organisms possible during pre-shedding of waste	Highest exposure to dioxins & furans during process. Volatile organic compounds in fly ash residue
Routine Exposures	None	None	Possibility of exposure to radiation	Guaranteed exposure to toxic pollutants
Maintenance & Repair Exposures	None of contaminated parts	Required on contaminated pre-vacuum system	Required on contaminated pre-shedding system & air exhaust	Required on emission stacks & refractory linings with persistent risk of exposure to toxic pollutants



Facilities & Infrastructure Requirements



Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Space Requirements	Small to moderate: Compact construction with closely fitted shredder (optional)	Small to moderate: Shredder separately installed with necessary hydraulic arm	Large	Largest: Prohibited in residential areas
Utility Requirements	Water, small electricity supply, water drain	Steam & water drains, small electric supply	Water drain, large electricity supply	Large fuel & electricity supplies
Collection of untreated waste	COMMON TO ALL TREATMENT METHODS AS LAID DOWN IN BIOMEDICAL WASTE RULES 1998 RADIOACTIVE WASTES – AS PER D.A.E. REGULATIONS			
Disposal of treated waste	Through conveyor belt into dumpster for safe land filling	Though typically wet: Through conveyor belt into dumpster for safe land filling	Through conveyor belt into dumpster for land filling	Currently hand collected, bagged & sent for land filling





Comparative Costs

Selection Criteria	The WasteDoctor™	Autoclaves	Microwaves	Incinerators
Capital Cost	Low to Medium	Low to Medium	High	High
Operating Costs	Lowest: due to recycling of water & heat retention	Low: uses steam only. Approx same as WasteDoctor™ with less benefits as shown	High: uses electrical power only	Highest: high energy input & low efficiency
Degree of Maintenance	Low: cleaning, oiling, greasing	Low: cleaning, oiling, greasing	High: trolley tracks, sophisticated electronic equipment	Very High: fuel systems, stacks, refractory linings, monitoring equipment
Consumables	None: no pretreatment of waste with Sodium Hypochlorite	Pretreatment with Sodium Hypochlorite Require: deodorants, high-temperature resistant bags, hepafilters,	Replacement of expensive molded carts after 500 uses	Fuel filters, electrostatic precipitators





INFORMATION MEMORANDUM

Waste Management Rethink

It is clear that the solution for waste management is not merely a matter of collecting the waste, but it is also essential for new technology to be integrated into the treatment systems in order to appropriately deal with India's diverse categories of waste. It is also essential for entities to take a firm grip of their own generation of waste, as well as the treatment of that waste, prior to it being collected and/or disposed of by the local municipalities. Medium and long-term cost savings for the establishments that generate the waste is the most positive fall-out as is the impact on environmental pollution and degradation.

CWM's eco-conscious steam sterilisers which guarantee waste sterility to the highest possible Log 6, also ensure worker-safety and have been custom-designed in order to uniquely be used within the framework of a varying number of industries, thereby creating true change and impact in waste management.

Technology Fundamentals

The foundation of CWM's technology is an autoclave, which is a base technology by which heat in the form of steam and pressure is applied to waste over a prescribed amount of time, which is what ensures sterility of the highest level. **Flash-burning in incinerators at temperatures as high as 1000 degrees C does not ensure total bacterial kill as does slow steam sterilization at low temperatures (121-133 degrees C) and pressures.**

CWM's versatile sterilisers have varied applications:

- The WasteDoctor: at hospitals, clinics and nursing homes
- The WasteChef: in the food and horticulture industry
- The Waste Clinic: as a truck-mounted door-to-door collection & treatment system
- The Waste Base: for use at large waste treatment or transfer stations
- The Waste Master: for use on board large ships or at ports

Contd....



FISH WASTE TO FISHMEAL AT SASSOON DOCK, COLABA, MUMBAI

The WasteBase can be utilized also at fishing docks, at poultry-culling stations or at abattoirs to sterilise and breakdown fish, chicken, meat and bone – to produce valuable poultry feed or dog food pellets.

Fishmeal is the most expensive and valuable nutrient not only in the plant and horticulture industry due to its high phosphorous content, but more as a part of a carefully-calculated formula in the production of chicken-feed and dog-food pellets.

It is estimated that on the buying cost of Rs. 7 per kg fishwaste, the same could be sterilized, ground, bagged and sold for more than Rs. 28 per kilogram....and rising! The net profit would be approximately Rs. 5 per kilogram.

CWM has a prototype sterilizer ready to be installed for the entire process-chain-from collection to bagging to sale-and is ready to go

CWM's patent-pending waste technology is several steps ahead

CWM has endeavored to create a solution that is not only ecological but also economical. Please view below a short fact section of commonly asked questions for an added overview of CWM and its steam-sterilisers:

1. CWM is a technology provider, but also has experience in how centralised waste facilities can be set up; as well as the ability to advise in the case of hospitals and food processing factories, how to best utilise all the elements of the technology (such as the rotating canister that is mobile) in order to ensure smooth operational efficiencies.
2. CWM is a privately-owned, Indian Company, and the technology is Patent-Pending and trademarked. The technology has been developed in-house.
3. CWM has sold waste technology machines to:
 - DysaTratamientos, New Mexico
 - The Tata Memorial Cancer Hospital (Mumbai, India)
 - Hindalco Hospital (Uttar Pradesh, India)
 - Dr. B Borooah Cancer Institute (Guwahati, Assam, India)
 - Bangladesh Rifles (BDR) Hospital (Dhaka, Bangladesh)

TATA MEMORIAL CENTRE
TATA MEMORIAL HOSPITAL
AND
ADVANCED CENTRE FOR TREATMENT, RESEARCH & EDUCATION IN CANCER

Dr. Ketayun A. Dinshaw
DMRT (Lond.), FRCR (Lond.)
Director, Tata Memorial Centre
and
Professor, Dept. of Radiation Oncology



E. Borges Marg, Parel,
Mumbai - 400 012, India.
Phone : 2413 9318 / 2417 7000
Fax : 91-22-2416 8440 / 2414 6237
E-Mail : dinshaw.tmc@vsnl.com
Website : www.tatamemorialcentre.com

January 3, 2005



TO WHOM IT MAY CONCERN

This is to certify that the Hydroclave was commissioned at the Tata Memorial Hospital in September 1999 - as an integral part of a total Hospital Infectious Waste Management System.

The total quantity of infectious waste treated annually has progressively increased as follows:

- 2000 - 46,317 Kg.
- 2001 - 65,695 Kg.
- 2002 - 63,743 Kg.
- 2003 - 69,778 Kg.
- 2004 - 67,882 Kg.

The waste generated and treated include sharp containers, infectious plastic wastes from patient care, operating theatres, body fluids and laboratories. Anatomic body parts and cytotoxic drug vials are not treated in the Hydroclave.

The sterility testing and cycle validation is done using spore strips of the biological indicators *Bacillus Stearothermophilus* once monthly as per guidelines. 155 cycles have been validated with spore strips of *Bacillus stearothermophilus*. This testing has been certified by our CSSD. To date all the cycles tested have been validated by a log 6 reduction in bacterial counts and bioburden.

It has been estimated that the costing works out to Rs.14.86 per Kg. taking into account-

- Depreciation over 5 years
- Annual Maintenance Charges
- Process cost of electricity steam & water
- Manpower cost i.e technical and labour
- Consumables i.e bags and sharp containers

There is a considerable advantage of sterilization and shredding with a volume and weight reduction of the total waste mass by 75-80% - initially filling two tonne dumpsters per day to presently a single one tonne dumpster per week.

The overall performance of the Hydroclave System has been satisfactory in the last 5 years with a downtime of 5.2% calculated over 5 years.

K.A. Dinshaw.



Department of Microbiology
Tata Memorial Hospital
Tata Memorial Centre

27th October, 2009.

To Whomsoever It May Concern

We have validated the test cycle of the new machine called Waste Doctor on the 7th September, 2009. This was carried out with a biological indicator that is routinely used to validate the process of steam sterilization in the department.

The cycle was validated, that is the spores of the test organism, *Geobacillus stearothermophilus* were killed with a log 6 reduction in the number of spores on the test strip.

Dr Rohini Kelkar MD, DPB.
Professor and Head

27th Oct, 2009.




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 Tel: +91 22 67974999 Fax: +91 22 67974616
 Email: laboratory@geochemgroup.com

International
 Independent Inspection
 &
 Testing Company



TEST CERTIFICATE

Analysis No. : MISC/09/10/007289
 Date : 22/10/2009

Party's Name & Address : **CONSOLIDATED WASTE MANAGEMENT INDIA (P) LTD.**
MUMBAI

Letter Ref No. / Date : GEO-CHEM/2009 DATED 12/10/2009
 Sample Received on : 14/10/2009
 Date of Analysis : 16/10/2009 — 21/10/2009
 Sample described as : **DRIED FOOD WASTE**
 Tested to Specification : NIL
 Stamped / Seal By : NIL
 Marks : NIL

Test	Method/Technique	Results	Unit of Measure
Total Proteins / Crude Proteins	GAFTA 4 : 0 - 2003	16.03 %	
Calcium	GCLPL/QS/CM/5.4/53-ICP1	2230.06 mg/kg	
Phosphorous	GCLPL/QS/CM/5.4/53-ICP1	1463.68 mg/kg	
Total Carbohydrates	By Calculation	14.97 %	
Fats	GAFTA 3.0 - 2003	10.62 %	
Moisture	GAFTA 2 : 1 - 2003	42.82 %	
Aflatoxin (B1, B2, G1, G2)	GAFTA 24 - 2003	ND —	

Note :- ND= Not Detected, Detection Limit= 0.5 µg/kg
 Note: Our analytical findings reflect the quality of the same at the time of testing. No responsibility can be expected for the possible consequences of further development of Aflatoxin which may depend upon storage, handling & weather condition which may influence the results at a later date/time

Sample Not Drawn By
 GEO-CHEM LABS

For Geo-Chem Laboratories (P) Ltd.

 Anoop Pushpan
 Manager - Organic(Agri.)/Petroleum Division

RG

Proforma No. GCLPL/QS/5.10/02 Analysis No. : MISC/09/10/007289 Page No. 1 Of 1
 1. Test certificate in full or part shall not be reproduced unless written permission is obtained from Geo-Chem Laboratories (P) Ltd.
 2. This inspection / testing has been performed to the best of our ability and our responsibility is limited to proven negligence. This certificate which is issued on conditions stipulated overleaf, reflects our findings of the time and place of inspection / testing and does not relieve parties from their contractual obligations. Samples will be retained by us for a period of thirty days only, unless specific instructions to the contrary are received.

A MEMBER OF THE GEO-CHEM GROUP
 www.geochemgroup.com

Food waste from Taj Hotel, Chemical analysis report and conclusions.

Analysis as reported

proteins	16.03 %
calcium	0.22 %
phosphorous	0.15 %
carbohydrates	14.97 %
fats	10.62 %
moisture	42.82 %
aflatoxin	0 %
silica	13.04 %

Without silica addition, it will read as

No silica analysis

proteins	16.43 %
calcium	0.26 %
phosphorous	0.17 %
carbohydrates	17.22 %
fats	12.21 %
moisture	49.24 %
aflatoxin	0.00 %

On further drying to 10% moisture, the saleable product will have

Saleable dry product analysis

proteins	30.34 %
calcium	0.42 %
phosphorous	0.28 %
carbohydrates	28.34 %
fats	20.10 %
moisture	10.00 %
aflatoxin	0.00 %

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Contact Us



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INDIA

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