

**Treatment Technologies:
Then and Now**



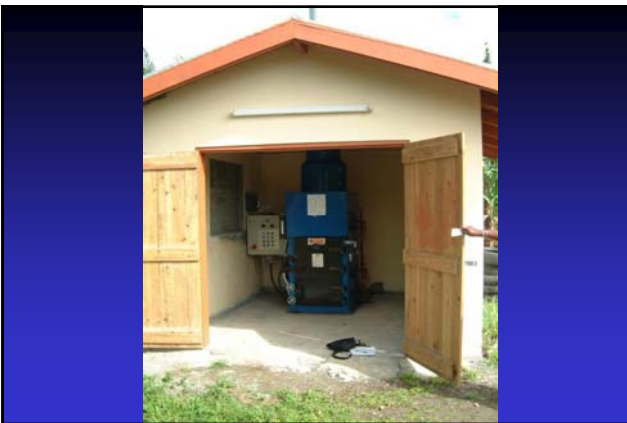
IStAATT/ NBSA Symposium
Albany, New York
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And in the beginning.....

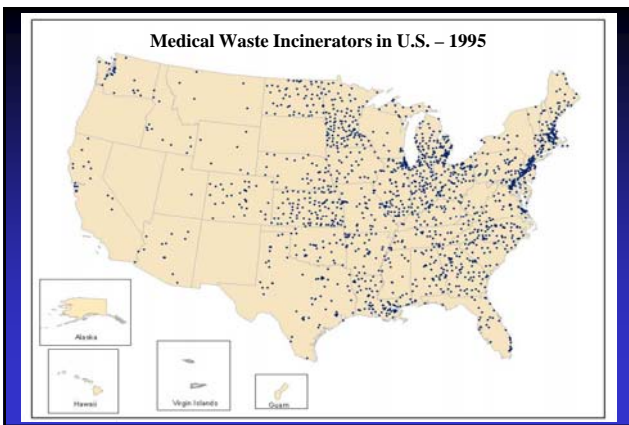


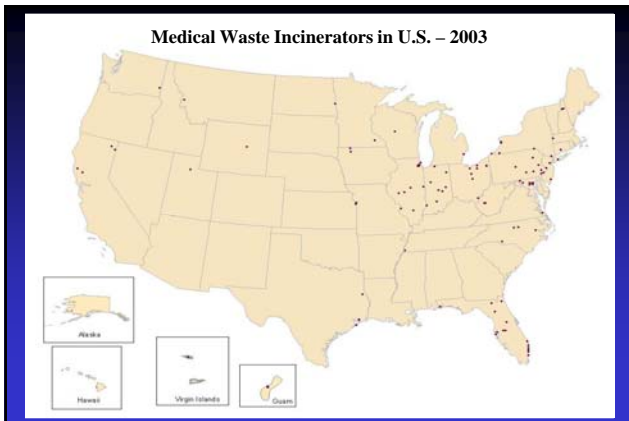












ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA-HQ-OAR-2006-0534; FRL-8743-1]

RIN 2060-A004

Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

Federal Register / Vol. 73, No. 231 / Monday, December 1, 2008 / Proposed Rules

TABLE 8—NUMBER OF HMIWI THAT ARE IN EACH SUBCATEGORY AND THAT COMPRISE THE MACT FLOORS

Unit size	Total number of HMIWI	Number of HMIWI in MACT floor pool
Large	36	5
Medium	17	3
Small	2	1
Small Rural	2	1

57 units at 51 facilities
 14 Commercial units
 47 Captive (On site of generator)

"EPA assessed the impacts of one alternative waste disposal option. This option involves on-site sterilization of the waste using an autoclave followed by landfilling of the sterilized waste. EPA selected the autoclave/landfilling option because it is widely available."



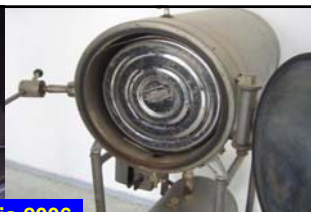
**US Army Medical Corp
Circa 1948**

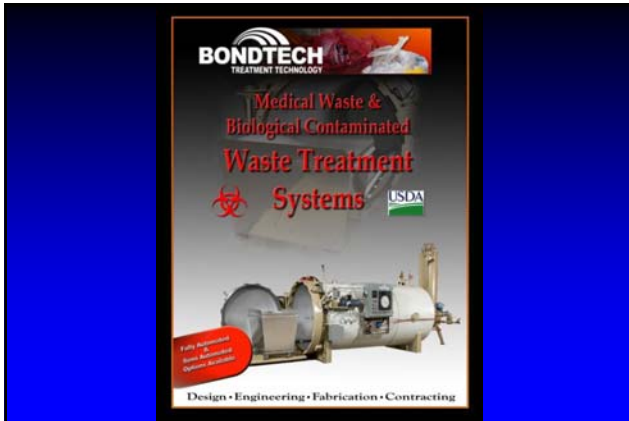
Autoclaves...





Armenia 2006









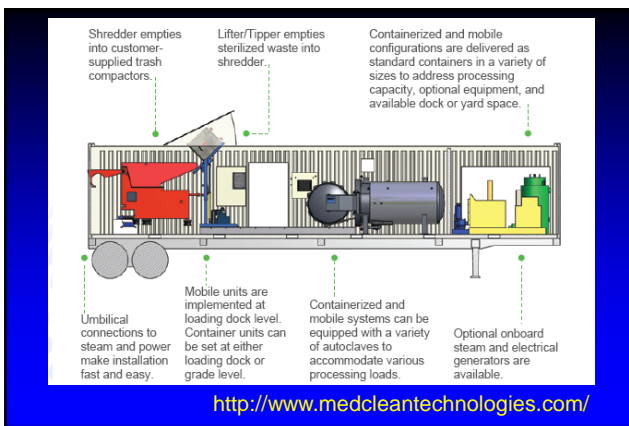




WWW.SANIPAK.COM















<http://www.ecodas.com/> **ECODAS Products**


T150



T300



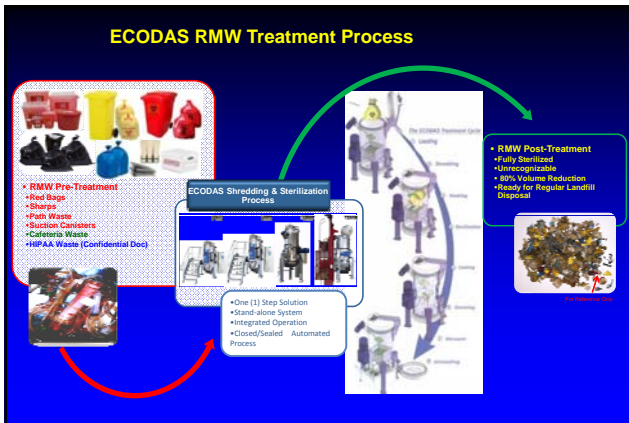
T1000



T2000



	T150	T300	T1000	T2000
Dimensions (L x W x H)	150 x 150 x 200 cm	180 x 210 x 260 cm	250 x 250 x 350 cm	300 x 300 x 400 cm
	5' x 5' x 8' 0"	6' x 8' x 8' 6"	11' 0" x 11' 0" x 11' 4"	10' 0" x 10' 0" x 13' 0"
Average Cycle Time Load 50 Units	50 Minutes	50 Minutes	40 Minutes	50 Minutes
Volume Capacity	150 liters / 39.5 gal	300 liters / 79 gal	1000 liters / 264 gal	2000 liters / 528 gal
Average Process	100 - 200 kg/batch	200 - 400 kg/batch	1000 - 1500 kg/batch	2000 - 3000 kg/batch
Weight Capacity	25 - 50 kg/batch	40 - 80 kg/batch	200 - 300 kg/batch	400 - 600 kg/batch
# Units Installed	5 units	100 units	10 units	50 units
Average Annual Machine Capacity				
1Shift	180,000 lb	360,000 lb	1,000,000 lb	2,000,000 lb
2Shifts	360,000 lb	720,000 lb	2,000,000 lb	4,000,000 lb
3Shifts	540,000 lb	1,080,000 lb	3,000,000 lb	6,000,000 lb



Typical **Hydroclave** Users

The Tata Memorial Hospital in Bombay, India purchased the Hydroclave Model H-25



Enviromed Inc. in Canada collects waste from many Hospitals and operates The Hydroclave H-100



WWW.HYDROCLAVE.COM













<http://tempico.gostrategic.com/>



Moist Heat/ Electro Thermal Radiation





Chemical Treatment Systems

Types of chemicals used

Sodium Hypochlorite
Chlorine dioxide
Calcium Oxide
SterCid (Quat/Glutaraldehyde/Isopropanol/Pine Oil)



<http://www.mcmetech.com/index.htm>



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MED+SHRED
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Caustic Digester Units (CDU)

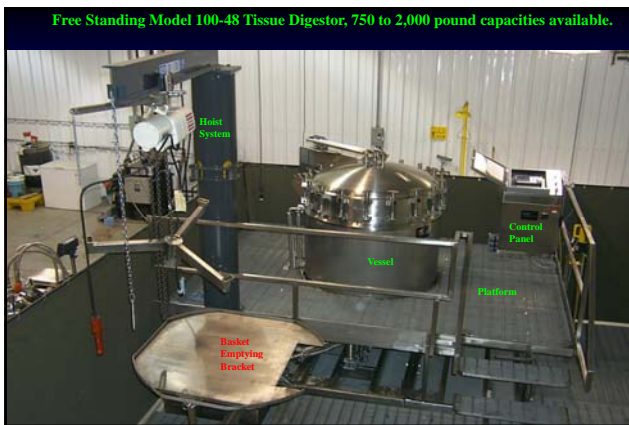


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Medium Sized Tissue Digestor

Model 100-30-31

280 pound capacity
per cycle



Effluent Decontamination Systems (EDS)

Michigan State 8000 Gal Reactor



AFD-400



Automatic Flow
—
continuous
treatment of
liquid effluent



July 14, 2008



E-1P



Plasma/Pyrolysis/Gasification



Conclusions

The number of treatment technologies continues to fluctuate on an annual basis (domestic and international companies)

Selection will be impacted by:

- Economics
- Regulations including appropriate efficacy data
- Requirements of the waste generator