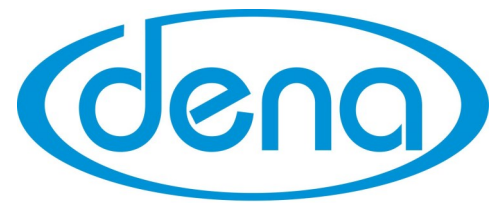


DRT

DENA RECYCLING TECHNOLOGY



our nanotech future



Bio-Engineering for High Speed Composting



our nanotech future



2003/347



DENA RECYCLING TECHNOLOGY

ABOUT DRT

DRT (DENA RECYCLING TECHNOLOGY) is a High-Speed Composting (Fermentation & Drying) System which can convert a batch of organic matter or waste into value-added products such as fertilizer or animal feed within 2-24 hour. The base technology of DRT is to reproduce the natural circulation system in the machine for short time operation. The material such as organic waste, food processing waste and sludge are thrown into the reactor and is vacuumed to maintain a certain boiling point. Thus an ideal condition for the high-speed composting is provided and the material is dehydrated in a short time.

THE TECHNOLOGY

- It can recycle tons of waste within 2-24 hours
- Capacity range from 10 kg/day to 300 tons/day
- No wastewater is produced; the water from the waste is used for the steam in the system
- High saline and moisture content waste can be treated
- There is no smoke or pollution, 100% environmental friendly, can exchange carbon credits as per the Kyoto protocol
- The output is bacteria free
- No bad odour during the process
- Compact size and less area required
- The system is multipurpose, same system can be used for water recycling as well



DENA RECYCLING TECHNOLOGY

THIS TECHNOLOGY CAN BE USED FOR

1. Municipal solid waste treatment
2. Slaughter house waste
3. Fish waste
4. Poultry waste
5. Oil extraction
6. Human waste treatment
7. Sludge recycling
8. Plants/trees recycling
9. Industrial wastewater treatment
10. Oil Refinery Waste
11. waste to Energy

FEATURES

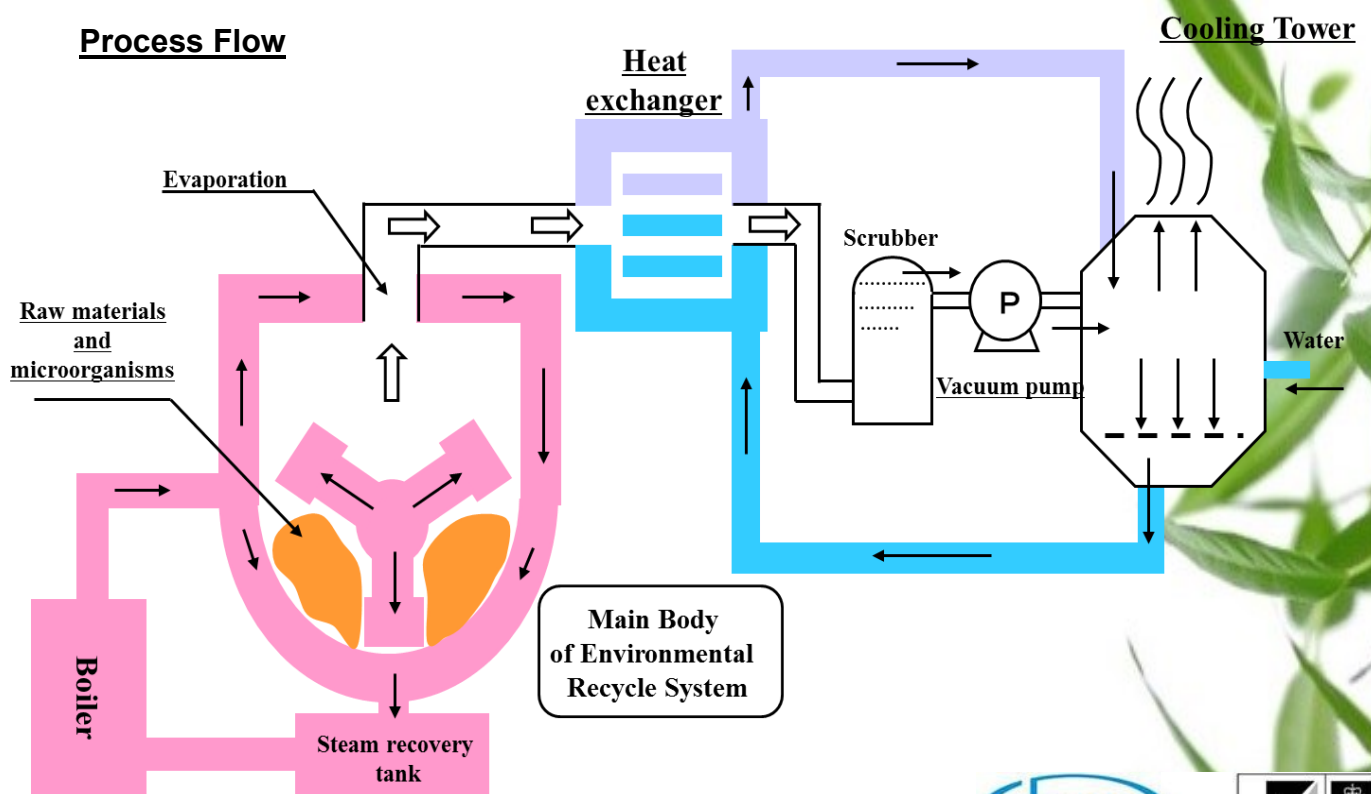
- The compact systems Converts all organic waste into Compost /Animal feed within 24 hours.
- No sorting required, can take fruit pits, nuts, oyster shells, clam shells, bones, hard rinds
- High salinity and Acidic wastes can be handled
- Low power and low operating cost
- Quite operation
- Our machine comes with Pulveriser, which will shred all waste if required before it is fed into the chamber.
- Microbes are not required regularly and we would supply it at free of cost.
- No harmful gas emissions emitted
- No odour, the output product will not smell no matter how bad the input waste smells.
- No water discharge, all moisture would be evaporated and all waste fed would be digested fully



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HOW THE SYSTEM WORKS

- Organic + inorganic waste is dumped into the processing chamber
- Indigenous microorganisms are introduced in the low pressurized chamber. These microorganisms can survive in high temperature. Extreme condition in machine creates new microorganisms spore that would survive in another extreme condition. Specific indigenous microorganisms are used for specific materials.
- Temperature (50-70°C) and moisture content is maintained in the system to enable microorganisms to multiply at a faster rate. Different amount of moisture contents in different materials does not effect the operation of the machine. Auto-matic control of the moisture contents enables specific microorganisms to survive and multiply.
- Waste water is used in cooling tower, so there is no water wastage
- All the materials are treated differently





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Example of Treatment

	Types of Waste
Animal Husbandry related	<ul style="list-style-type: none"> ▪ Cattle Dung (Bark, Rice Husks, Rice Straw and Sawdust are mixed) ▪ Pig Dung (Sawdust are mixed) ▪ Chicken Dung
Agriculture related	<ul style="list-style-type: none"> ▪ Selected vegetable wastes (Onion, Leek) ▪ Selected fruit waste (apple and tangerine and others) ▪ Baggass
Beverage related	<ul style="list-style-type: none"> ▪ Waste of Coffee drink, Oolong Tea and Vegetable Juice ▪ Waste and sludge of clear liquor ▪ Sludge of beverage factories
Food Process related	<ul style="list-style-type: none"> ▪ Tofu Waste ▪ Fermented Beans Waste ▪ Milk Waste ▪ Edible Oil sludge
Organic Waste	<ul style="list-style-type: none"> ▪ School ▪ Hotel ▪ Restaurants
Sludge	<ul style="list-style-type: none"> ▪ Sludge of Lakes and Marshes ▪ Sludge of Printing Factories
Fish Waste	<ul style="list-style-type: none"> ▪ Waste of processed sea food ▪ Midgut Gland of scallop ▪ Shells of sea urchin



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Comparison of available organic waste treatment technologies

	Environmental Recycling System	Sealed and mixing fermentation system	Mixing Fermentation System	Remarks for Environmental Recycling System
Installation Area and Facility Requirement	Very little incidental facilities and equipment	Very little incidental facilities and equipment	Require the large treatment and incidental facilities and equipment. Requires large space	Small space required
Input Materials	Can mixed various materials	Can not treat hard and solid materials	Can not treat hard and solid materials	Very short treatment time. Can treat all kinds of materials
Water Adjustment	Not required	Require adjuster such as rice husk and sawdust	Require adjuster such as rice husk and sawdust	Fully automatic system
Odor	No Odor (Sealing System)	No Odor (Sealing System)	Open System (Strong Odor)	Environmentally Friendly
Running Costs	Low	High energy costs and water adjustment materials	Low	Low Maintenance costs
Costs of Facilities (Building etc)	Low	Low	High Costs	Can be placed out doors



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WASTE TO ENERGY

"DRT system of technologies enable you to alternate between the following options: Electricity, feedstuff or composting, or you can run all options at once with extra set (s) of DRT equipment (s) utilizing system self generated steam to power entire sets".

Waste

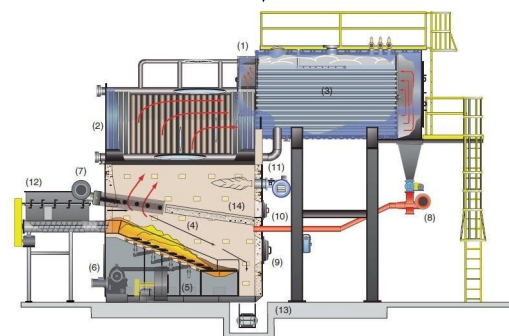
100 ton Waste Input



60 ton

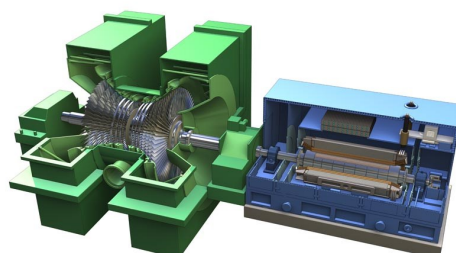
Output generated

Biomass Boiler



10 ton Steam generated

Steam Turbine Generator

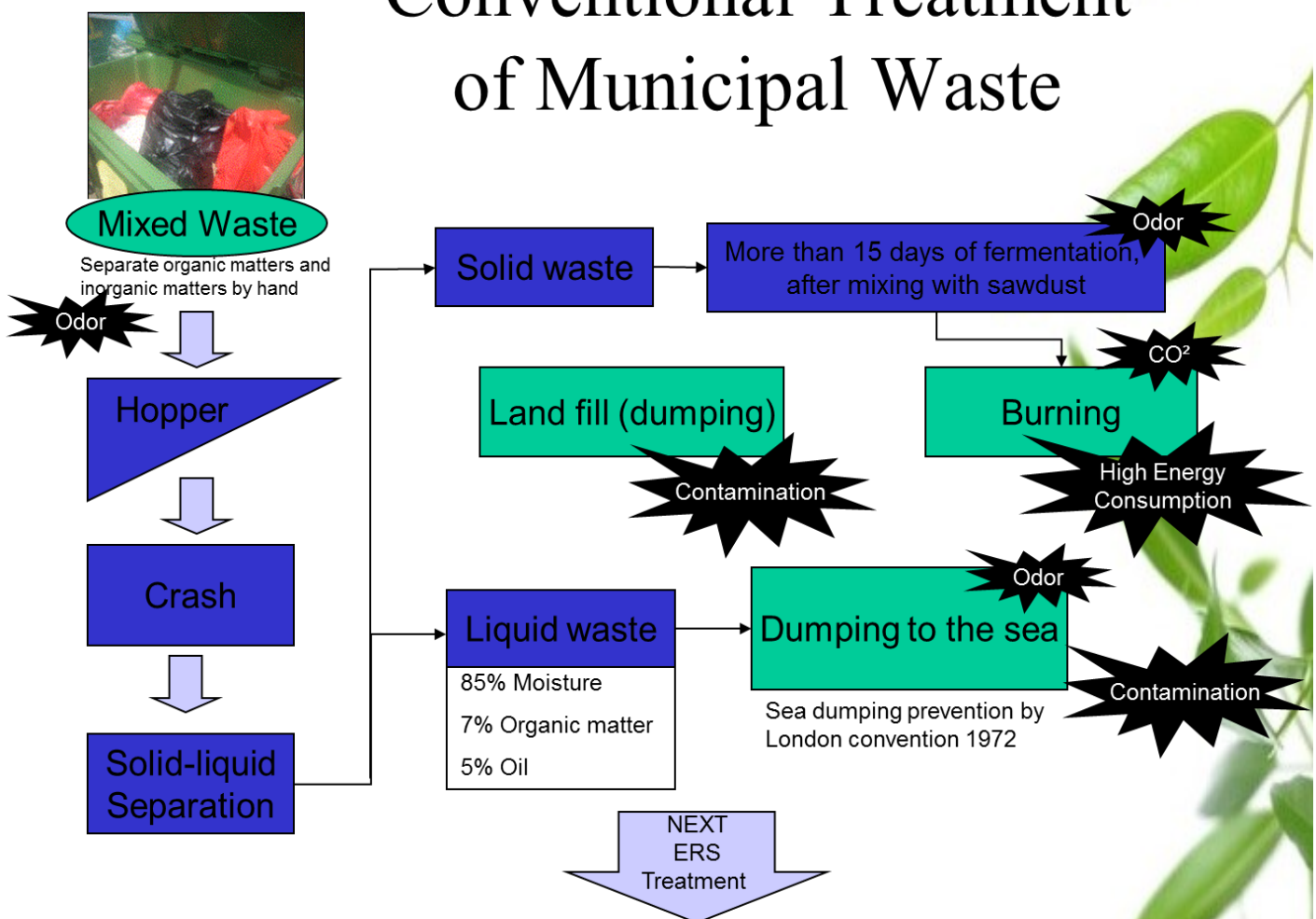


1.6 Mw/h produced



Municipal Waste Management

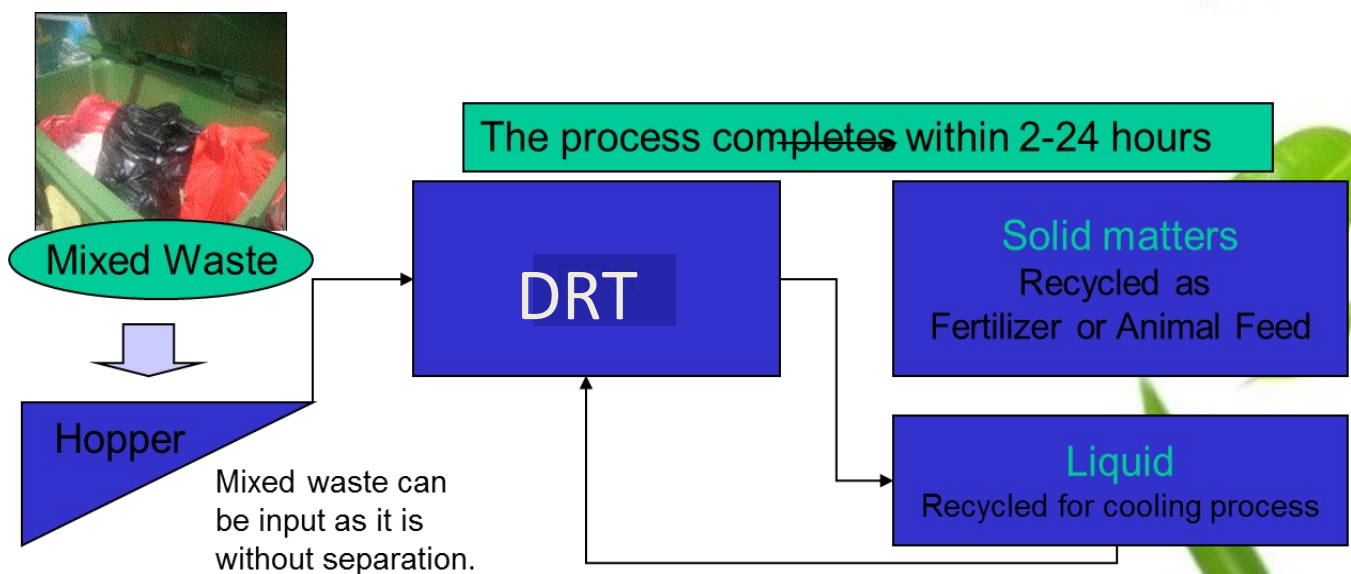
Conventional Treatment of Municipal Waste





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DRT Treatment of Municipal Waste



DRT is simple and compact system

DRT can be installed at the site of waste source hence the transportation cost is saved.

- No Odour/No CO²
- Low Running Cost

Energy supplies are "Steam" and "Electricity". Fermentation heat is also recycled



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EXAMPLES OF THE TREATMENT

Live Stock

Animal excreta



Pig Blood



Fertilizer



Dry Powder

Dredged Sludge



Dry Powder

Pruned Branch



Planting Soil

Waste Liquor



Onion Peel



Bean Sprouts



Old milk & drinks



Composting



Composting



Composting



Composting



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MACHINE SIZE AND PRICE

We manufacture machines of various sizes starting from 10Kg/day to 100 ton/day. Smallest machines can be used in small restaurants and Hotels, whereas bigger ones can be used for industrial purpose. All the machines are designed according to clients need and what is it that they need to recycle. The price starts just at £ 3000 GBP for our smallest machine. For more information on price of different size machine, please contact us.

MACHINE INFORMATION

		DRT-0	DRT-1	DRT-2	DRT-3	DRT-4	DRT-5	DRT-6/7	DRT-8
24hours operation		500kg/day	2ton/day	4ton/day	8ton/day	15ton/day	25ton/day	50ton/day	100ton/day
Size of DRT	Width	3.5	4.9	6.8	9	11.5	11.5	11.5	11.5
	Dimension	1.7	2	2	2	2	2.3	5	9
	Height	1.7	2	2	2.2	2.2	2.3	5	5
Height of Hopper		2.6	3.8	3.9	4.3	4.3	4.5	6	6
Power Supply		Electricity & Boiler							

- Price of the above machines are available on request
- Machines information smaller than 500Kg/day is available on request.



DENA RECYCLING TECHNOLOGY

DRT PLANTS ARE INSTALLED IN FOLLOWING COUNTRIES

- Indonesia
- Japan
- China
- Vietnam
- Singapore
- Malaysia
- India
- Korea
- Philippines