Food Organics Dehydrators
FACT SHEET
RESIDENTIAL FLAT BUILDING WASTE COLLECTION INFRASTRUCTURE

Overview

Dehydrators process food waste in batches at high temperatures into a dry, soil-like odourless output and can reduce the volume of food waste by up to 90%. The machine stops processing when its sensor detects the waste has reduced to a moisture content of 4 to 6%. Steam generated from the process is condensed and discharged into a trade water outlet or sewer. The machines are generally quiet, have air tight sealing, and are not hot to touch.

Source: Hungry Giant

Bin Lift and Food Waste Dehydrator

Technical Information

- Machines are available in steel (can be powder coated) and stainless steel
- Processing rates range from about 9 to 60 kilograms per hour depending on the size of the machine
- Power usage ranges between 3.2 to 16.6 kilowatts per hour
- Capacities ranging from 55 to 1200 kilograms, with larger capacities for modular units
- Operates at a temperature of between 40 and 84°C which does not melt plastics and kills pathogens
- Does not require additives
- Steam arising from the process is condensed and discharged to trade water outlets or sewer. The water output is 100% sterile condensate, with no BOD (Biological Oxygen Demand) / TSS (Total Suspended Solids)
- Soil-like output at a ratio of 10:1 soil to soil enhancer
- Between 80 and 93% reduction in volume depending on the composition of the food waste
- Programmable control system and power saving mode, anti-jamming and overload sensors, and easy button controls
- Machine can be attached to a bin lifter (factory fitted) and can be housed in a cage
- Does not accept large bones or shells, plastics, metals, glass or medicines
- Life span of about 10 years
- Indicative dimensions (in millimetres) for the smallest unit is 1104 x 1004 x 1000 (w x l x h)
- Indicative dimensions (in metres) for the largest unit is 4050 x 1750 x 2105 (w x l x h)

Suitable Building Types

Typically used by commercial businesses such as restaurants, retail complexes and hotel chains. Available for residential uses also. Best suited to medium to high density residential flat buildings looking to reduce the number of general waste bins, which also have garden or landscaped areas for use of the soil-like output. Requires a caretaker to operate, load bin lift and empty outputs at the end of each processing cycle.

Education Needs

Residential education to target:

- Increased communication between building managers / caretakers and residents to maximise recycling and ensure timely processing of food waste
- Source separation of food organics from other waste types
- Carrying of food waste containers for disposal into larger bins stored in the communal waste storage room
- Timely processing of building food waste to reduce the potential for odour generation from storage bins

This project is a NSW EPA Waste Less, Recycle More initiative funded from the waste levy.

Published November 2017

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Source: Eco Guardian

Empting a Small Food Waste Dehydrator


Source: Hungry Giant

Caged Food Waste Dehydrator with Bin Lift

Case Studies

Over fifty Hungry Giant dehydrator installations are in Sydney alone at the Darling Quarter Commonwealth Bank Building and Retail Precinct, HSBC Building with 23 restaurants and nine coffee shops, State Theatre, Hurstville Central Shopping Centre, and Australia Square.

Degraves Street in Melbourne is home to 90 food and beverage businesses. Each business had its own waste disposal arrangements and the majority of the food waste generated was sent to landfill. The City of Melbourne had implemented a large GaiaRecycle system to reduce the amount of food waste by up to 90% into a sterile, nutrient rich soil amendment. Council is looking to install additional units in other popular food strips with a plan to use the by-product on the city's parks and gardens.

Strengths

- Generation of an odourless output that can be stored for longer time periods, used as a soil enhancer or disposed to standard garbage bins (at reduced volumes)
- Significantly reduces the volume of overall waste
- Reduced storage capacity required for general residual waste (garbage) which can reduce numbers of bins required for collection or frequency of collection
- Can lead to increased diversion of food organics from landfill
- General waste stream comprises of less food waste and as such, is less likely to generate nuisance odour
- Net reduction in greenhouse gas emissions due to reduced collections / truck movements reduced food waste decomposing in landfill
- Water output is sterile, filtered, and is not oily

Weaknesses

- Requires a caretaker to operate the bin lift and dehydrator machine
- Requires electricity to operate and sufficient clearances for installation
- Contaminated feedstock can result in machine breakage or increased maintenance requirements, as well as contaminated outputs unsuitable for reuse
- Further processing of dehydrated product may be required depending on the use of the output
- NSW regulatory requirements may mean that environmental licensing is required to install the machine

Compliance

- In NSW, applying waste to land may trigger specific regulatory requirements. A resource recovery exemption / environment protection licence may be required, particularly if outputs are to be sold on the market. Consultation with Sydney Water and the EPA recommended prior to installation given discharges to trade waste or sewer required. Drying or dehydrating food waste is specifically excluded from the Compost Exemption 2014.
- Caging around the machine is required due to moving parts and WHS risk.

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