

Is food-waste disposal playing  
on your mind?



## **Food waste solutions**

Inspired by nature, driven by technology





## Tackling food waste

Food waste is a global problem with millions of tons going to landfills on a daily basis. Given the high ambient temperatures in tropical countries and how food waste decomposes in landfills and turns into methane, a greenhouse gas that is 87 times more potent than carbon dioxide, it should come as no surprise to anyone. Landfills accounted for approximately 14% of methane emissions in 2017, making food waste a significant contributor to global warming. This has led to a search for solutions for the disposal of food waste other than sending it to a landfill.





## Exploring alternatives to a landfill

As more people recognize the impact that food waste plays in greenhouse gas emissions, more governments and organizations have worked to identify solutions to the disposal of commercial food waste. For example, many commercial waste management organizations now offer hauling the waste to compost facilities or anaerobic digestion facilities. However, solutions like this don't necessarily account for the emissions created in the journey that the organic waste takes after it is discarded. This journey of the waste to a facility that is typically far from the business generating the waste adds cost and damage to the environment by the burning of fossil fuels. Many organizations are taking a more holistic look at the factors leading to food waste, and in turn looking at the full impact of the disposal of organic waste. It's for this reason that more companies are considering how they can dispose of this waste on-site.



## On-site options for food waste disposal

There is a range of solutions that tackle decomposition in different ways, each with their own benefits and potential drawbacks. On-site disposal options include the following:

**Dehydrators:** Food waste dehydrators are machines that use heaters to evaporate moisture and agitators to shred the resulting food waste. The residual dried food waste is a brown powder that has 10 to 20% of the weight of the input. This can be used as a fuel source. Although some manufacturers of dehydrators call them composters and state the powder can be used as a soil additive, the powder is not compost and will create acids if buried in the soil. Therefore, most facilities opt to transport the residual waste to the landfill (where it now creates methane). What's more, it takes a significant amount of energy to dehydrate a feedstock that is at 70% to 90% moisture.

**Composting:** Composting creates an ideal environment for the bacteria, fungi, and other organisms to break down organic material. It is the oldest form to recycle organic waste, and it has long been deployed in backyards and agricultural sites as a means of creating material to benefit soil. Commercial organizations that compost, however, must have sufficient space to create the compost and then to use the resulting material.

**Grinders:** A grinder breaks down organic materials through grinding or shredding of those materials. The waste is discharged directly into the wastewater system. These systems are banned in most jurisdictions.

**Biodigesters:** A biodigester breaks down organic material using microorganisms and enzymes. There are two types of biodigesters: anaerobic (without oxygen) and aerobic (with oxygen). The output from anaerobic digesters includes methane, that can be used as an energy source. However, most of these are typically large, offsite commercial facilities that accept organic material from a variety of sources. Aerobic digesters can be installed in virtually any commercial food preparation space. Aerobic biodigesters create a waste product that is decomposed enough to be discharged directly into the wastewater system. In some cases, the filtered waste water can be used for irrigation.







## Optimal solutions for on-site food waste disposal

When considering the overall lifecycle of food waste, anaerobic biodigesters emerge as clear winners due to their reduced environmental impact and long-term sustainability. First, they allow for on-site disposal of the waste, without the need for additional greenhouse gas-emitting transportation or disposal of the remaining food products. In addition, aerobic biodigesters eschew the use of chemicals, instead introducing microorganisms to speed the natural decomposition of food. Aerobic biodigesters are a closed system and therefore give off no odour from food waste. This will eliminate flies and rodents from the facility, increasing hygiene. Also, eliminating food waste on-site saves money by reducing hauling costs.





## MagicBox – an innovative on-site food waste solution

Marketed by Trufrost & Butler, the MagicBox simply mimics a natural digestion process and can decompose waste foods within 24 hours. Our engineers often compare the MagicBox food waste aerobic biodigesters to steel stomachs. These machines can easily handle anything that a human can eat such as bread, pasta, fruits, vegetables, and other items commonly seen in the food group.

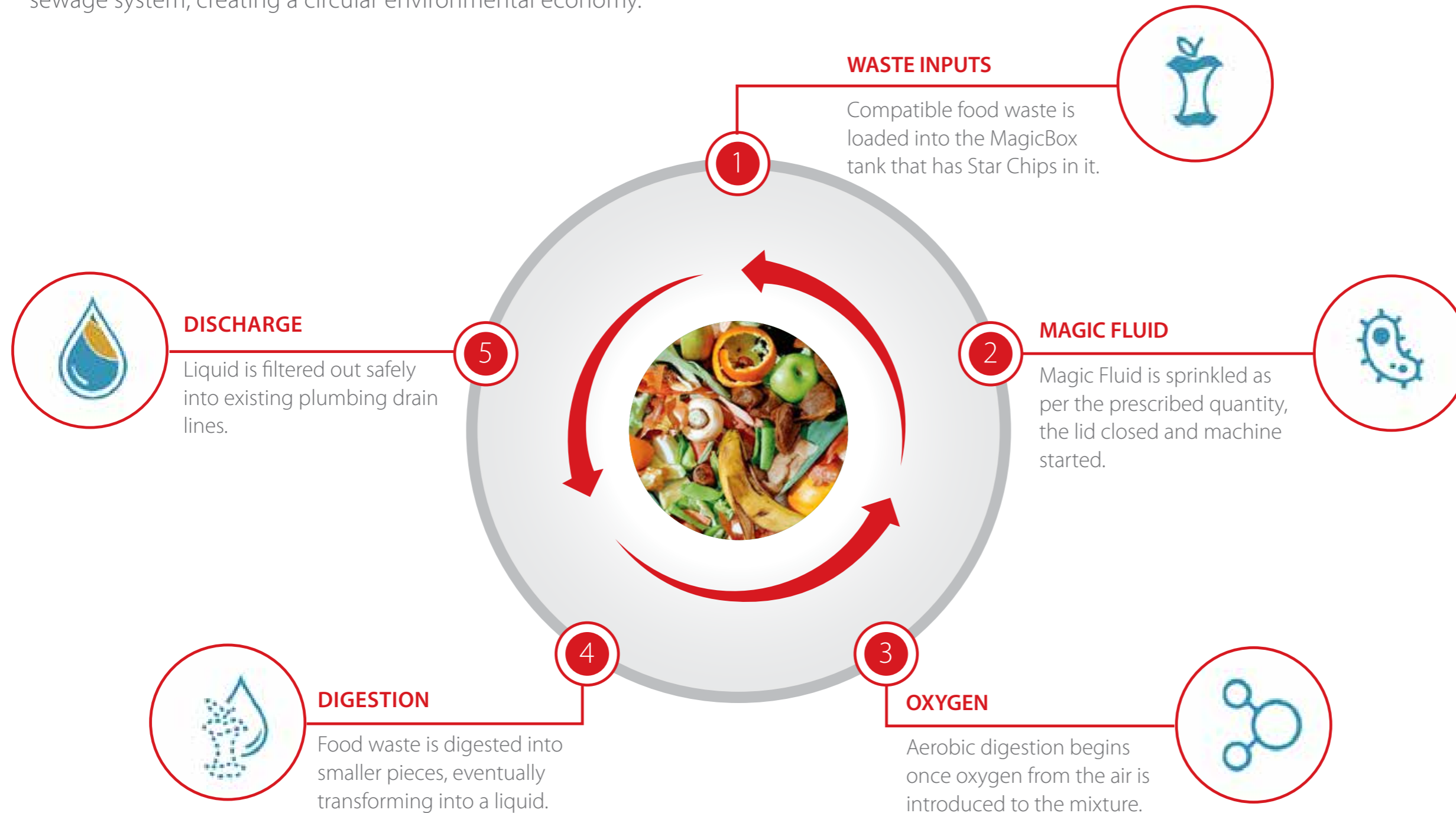
## Key Features

- ◆ Low cost, on-site food waste disposal
- ◆ State-of-the-art technology
- ◆ Carbon footprint reduction
- ◆ Interior-Exterior in SS 304
- ◆ Quiet, clean & odour free
- ◆ Eliminates the spread of bacteria such as salmonella or legionella
- ◆ Simple to operate
- ◆ Minimum power consumption; reduced running costs



## How does the MagicBox work?

The Magic Box is designed, manufactured and installed using cutting edge technology in the food waste recycling industry. When food waste enters the MagicBox biodigester, it begins to disappear in just a few hours. This seemingly magical process is actually the work of our MagicFluid and Star Chips. As this special mixture combines together to feast on the food waste, grey water is created as a by-product. This grey water can be safely discharged into the sewage system, creating a circular environmental economy.



Being an aerobic digester, Magic Box can be installed in virtually any commercial food preparation establishment and is designed to create a waste product that is decomposed enough to be discharged directly into the wastewater system. The filtered grey water can even be used for irrigation. It is a hyperlocal alternative to the traditional truck and bin collection system. We deliver significant savings because we eliminate haulage from the process while significantly reducing the harmful emissions that come with truck traffic.

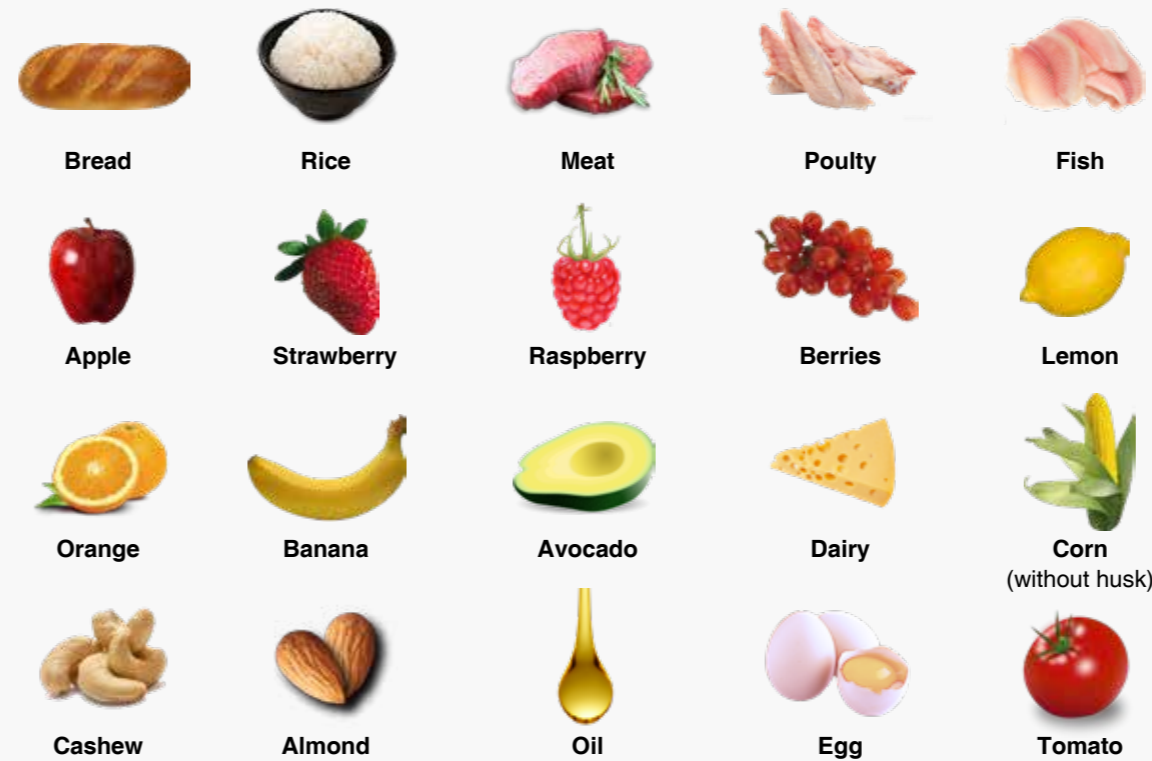


## What waste to process?

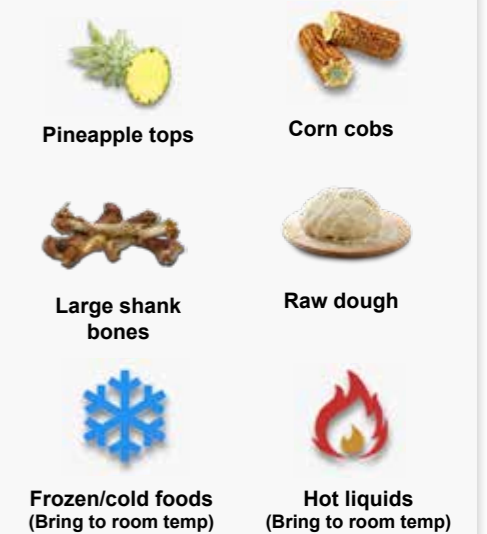
All cooked and raw food - vegetarian or non-vegetarian - can be put into the MagicBox and will be digested except pineapple tops, corn-cobs, large shank bones and raw dough. Even these can be digested provided these are macerated, mixed with other food waste and then put into the MagicBox. Most foods are easily digested in a 24 hour time period.



### What can be digested in MagicBox?



### Cannot be digested





## Different models to fit your needs

The Magic Box is designed for commercial as well as industrial applications. Commercial models range from 30 kgs, 50 kgs, 100 kgs & 200 kgs per day capacity. Industrial models range from 300 kgs, 500 kgs, 1000 kgs, 2000 kgs, 3000 kgs, 5000 kgs & 10,000 kgs per day capacity.



### Technical Specifications - Commercial models

Model	ZOW-30E	ZOW-50E	ZOW-100E	ZOW-200E	ZOW-300E	ZOW-500E
Capacity	30 kgs / day	50 kgs / day	100 kgs / day	200 kgs / day	300 kgs / day	500 kgs / day
Electricals	220V/50Hz/1Ph	220V/50Hz/1Ph	220V/50Hz/1Ph	220V/50Hz/1Ph	400V/50Hz/3Ph	400V/50Hz/3Ph
Power Consumption	0.2 kw	0.5 kw	1.5 kw	1.8 kw	2.4 kw	4.5 kw
Water consumption	130 ltr / day	180 ltr / day	300 ltr / day	450 ltr / day	600 ltr / day	1100 ltr / day
Dimensions (mm)	650 x 500 x 700	900 x 600 x 800	1100 x 700 x 900	1400 x 800 x 1100	1600 x 1000 x 1300	1900 x 1200 x 1400

Specifications are subject to change without prior notice due to continuous product development

### Technical Specifications - Industrial models

Model	ZOW-1000	ZOW-2000	ZOW-3000	ZOW-5000	ZOW-10000
Capacity	1 ton / day	2 ton / day	3 ton / day	5 ton / day	10 ton / day
Electricals	400V/50Hz/3Ph	400V/50Hz/3Ph	400V/50Hz/3Ph	400V/50Hz/3Ph	400V/50Hz/3Ph
Power Consumption	8.6 kw	10.4 kw	16.8 kw	27.0 kw	37.0 kw
Controller	Touch Panel	Touch Panel	Touch Panel	Touch Panel	Touch Panel
Product Weight	1560kg	2460kg	4500kg	7700kg	13,800kg
Dimensions	2600 x 1470 x 1880mm	3310 x 1730 x 2285mm	4769 x 2026 x 2318mm	5540 x 2490 x 2776mm	6988 x 3465 x 3471mm

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Handling food waste, **responsibly**

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