

In Vessel Composting



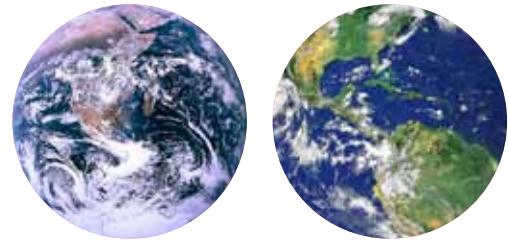
Food Waste to Resource

imc

Resource from Waste

Global responsibility for the Planet

In support of the requirement to reduce our global demand on the planet's natural resources and recycle more, legislation increasingly dictates that the disposal of food waste should be diverted away from landfill and recycled into renewable energy and fertiliser.



By 2050 we will need the natural resources of at least two Earth planets to live as we do now (Source: WWF)

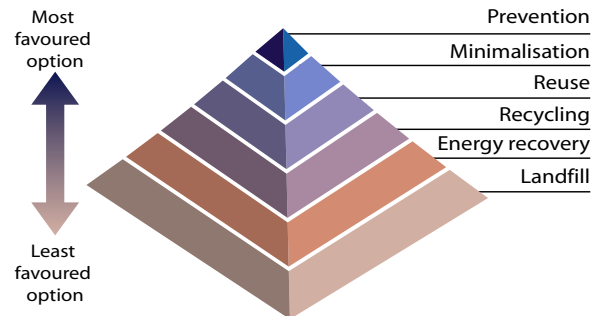
Commercial Food Waste

Commercial catering establishments produce substantial amounts of unavoidable food waste and, as the choice of disposal routes decreases, will inevitably be faced with rising and uncertain waste collection and disposal costs.

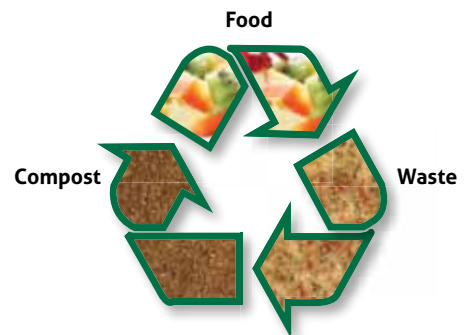
In Vessel Composting

Composting is a well-established, natural method for treating organic materials to produce a product that is free of pathogens and high in nutrients which can therefore add valuable organic matter to improve the condition of the soil. Composting features high on the UK Government's preferred recycling solutions.

An IMC In Vessel Composter (IVC) enables the waste producer to treat the food waste as it is produced, with no requirement for storage. By removing food waste from the solid waste stream, an IVC reduces the need for separate collections as well as improving the yield of dry recyclables such as paper, plastic, glass and metal.



In the EU, the Waste Hierarchy provides guiding principles with which countries should develop the infrastructure necessary to reduce waste levels and meet recycling targets.



Imperial College Research

IMC's food waste to compost system is the result of an extensive research programme concluded in 2007 by the world-renowned Department of Civil & Environmental Engineering at Imperial College. Senior professor, Sue Grimes, sums the system up as **"a landmark solution in reducing volumes of food waste disposal to landfill"**.



Member of the Association for Organics Recycling

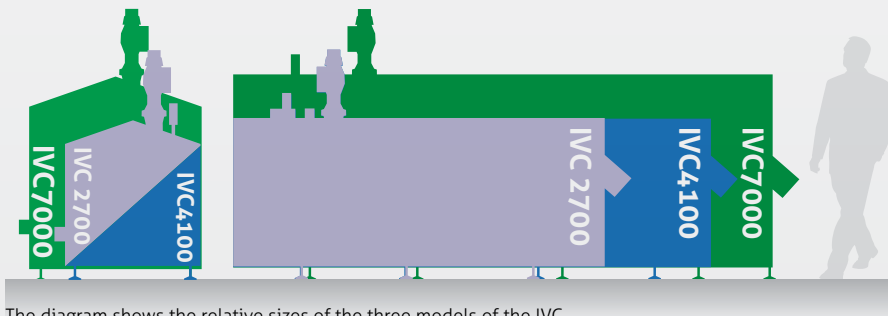
Award Winner 2009

Choosing the right IVC

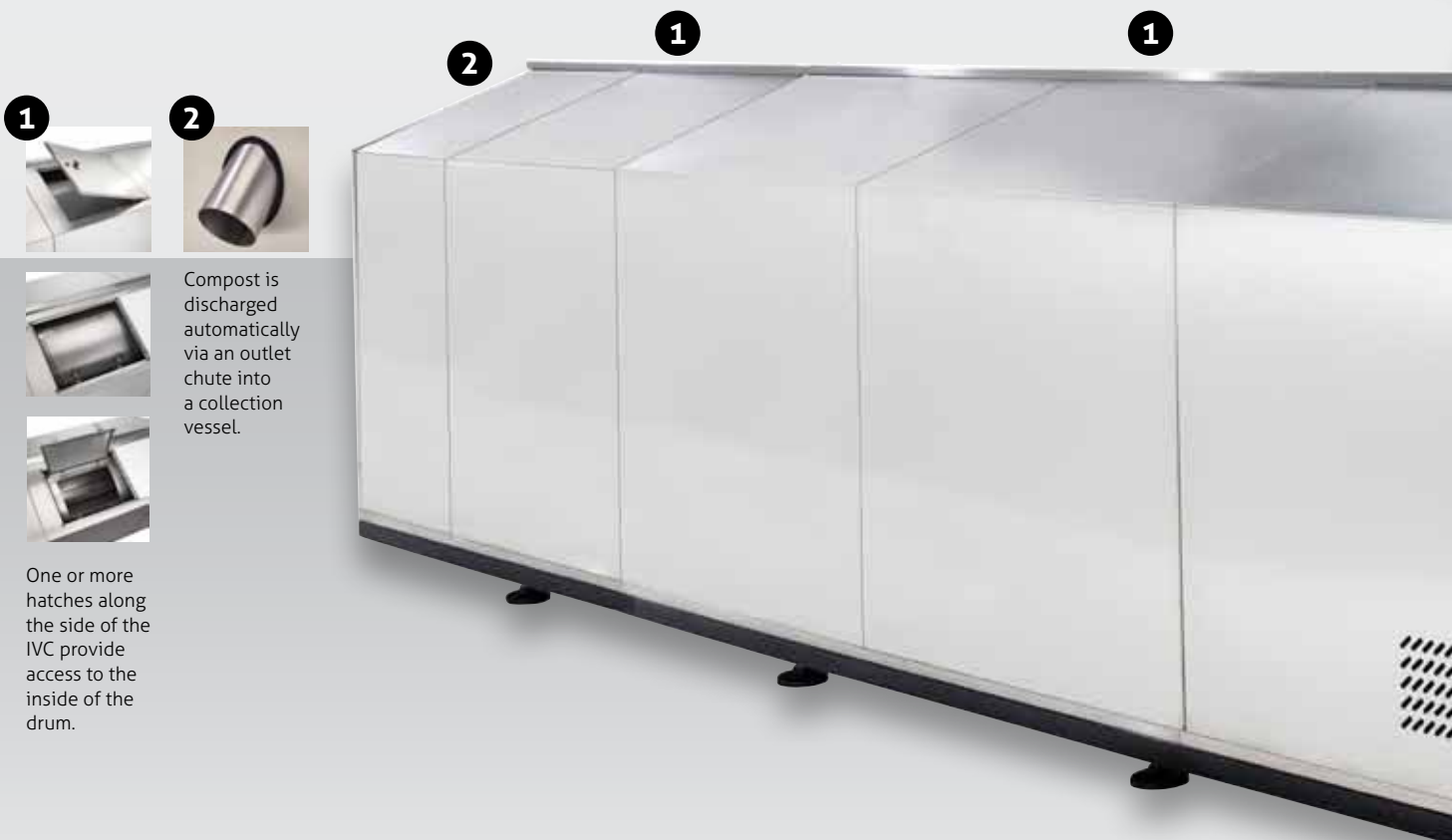
IMC manufactures a range of models to handle the varying amounts of food waste that are produced by differing sizes of catering establishment.

Model	IVC2700	IVC4100	IVC7000
Max Capacity (kg)*	859	1,305	2,227
Capacity volume (cu m)	1.534	2.329	3.977
Capacity volume (litres)	1,534	2,329	3,977
No. kgs food waste (dewatered)/ week*	150-300	250-500	400-1,000
Pellets - weekly max (kg)*	30-60	50-100	80-200
No. tonnes food waste (dewatered)/ annum*	8-16	13-26	20-52
Measurements - IVC			
Length (mm)	2,960	3,960	4,400
Width (mm)	1,080	1,080	1,400
Height (mm)	1,284	1,284	1,690
Weight – empty (kg)	575	700	1,150
Max weight – full (kg)	1434	2,005	3,377

* The max capacities are an indication only and should be calculated for each individual site.



The diagram shows the relative sizes of the three models of the IVC.



Compost is discharged automatically via an outlet chute into a collection vessel.

One or more hatches along the side of the IVC provide access to the inside of the drum.

The IVC uses aerobic conditions to enable the bacteria that are naturally present in food waste to decompose the material. This biological process is facilitated by the provision of 5 key elements:- **oxygen** and **heat**, supplied by the IVC, control of the **moisture content**, supplied by the Dewaterer, the reduction in, and consistency of, **waste particle size**, supplied by the Food Waste Disposer, and the right balance of **carbon and nitrogen** achieved by the addition of compressed sawdust pellets at the prescribed ratio.

Oxygen

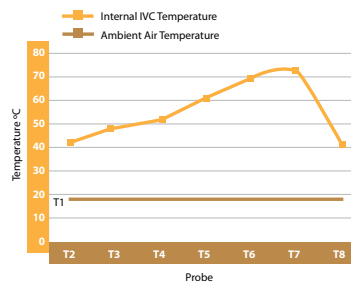


A fan draws in air which is first warmed before entering the drum in order to aerate the material inside. Periodic rotation of the drum provides further aeration of the contents.

Heat

The biological activity in the drum generates temperatures of up to, and sometimes even beyond, 70°C, thereby easily surpassing the temperatures at which pathogens such as ecoli and salmonella can survive.

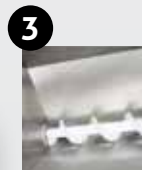
Typical in-vessel temperatures



Temperatures are recorded by probes along the length of the inside of the drum and are displayed on the Control Panel screen enabling the operator to establish if the biological process is functioning efficiently.

Carbon & Nitrogen

Food waste in its natural form is too rich in nitrogen to be used as a general compost so carbon levels must be increased by the addition of compressed sawdust pellets.



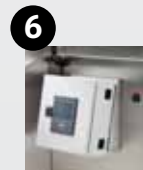
3 A built-in hopper with integral 2-piece auger screw provides simple and efficient automatic loading of the waste into the IVC.



4 A Traffic Light system provides at-a-glance information on the status of the IVC even from a distance.



5 Temperature and operating data can be downloaded via the provision of a USB stick.



6 IMC IVCs have been designed to be exceptionally easy to use and simple to operate.



7 A user friendly Control Panel and screen provide the operator with access to all of the IVC's facilities.

The Food Waste Composting Process



By providing the ideal conditions in which microbes can act upon the food waste, In Vessel Composters (IVCs) fulfil the essential requirements for producing high quality compost.

Using an IMC Food Waste Processing Station, food waste is first macerated and dewatered before being mixed with compressed sawdust pellets and loaded into the IVC.

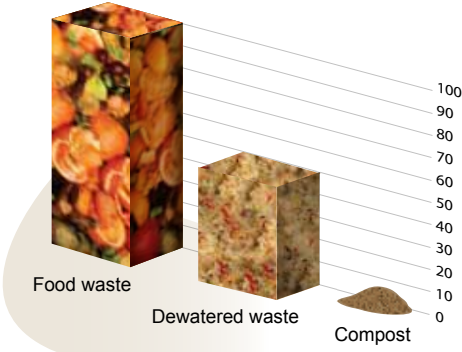
The IVC comprises a horizontally aligned drum that is rotated periodically in order to aerate the contents and enable the material to gradually move from one end of the IVC to the other.



It takes approximately 6 to 8 weeks for the material to move along the full length of the drum during which it is converted into compost that discharges automatically from the IVC.



The biological process by which the food waste is converted into compost creates heat which is sufficient to destroy any pathogens present thereby enabling **all food waste**, including raw and cooked meat and fish, to be processed.



Food Waste to Compost Reduction

The whole recycling process reduces the volume of waste material by over 90% - so one tonne of wet, kitchen food waste is typically converted into between 20kg and 50kg of compost.

CompPod

IMC can supply and install a compact mobile building in which all of the equipment necessary to convert food waste to compost can be housed. The 'CompPod' can be positioned at the most convenient location on site.



The multi award-winning CompPod at Imperial College occupies a small footprint yet processes in excess of 2 tonnes of food waste every week.

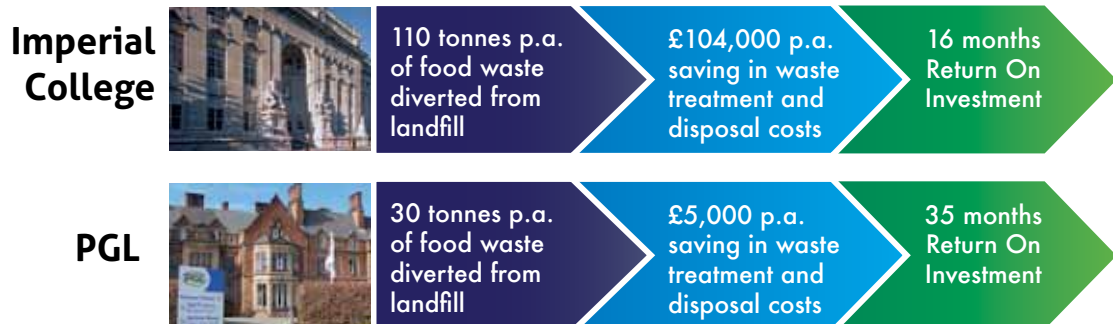
Awards

Both IMC and several of its customers have won numerous awards for its food waste to compost recycling system. These awards have been bestowed by expert judging panels across a range of industries from catering and facilities to waste and environmental management.



Case Studies

IMC Food Waste Management systems are in use across a broad range of Private and Public Sector commercial catering establishments from hotels, restaurants, shopping and entertainment centres to universities, schools, prisons and hospitals.



Imperial Machine Company Limited

Unit 1 Abbey Road, Wrexham Industrial Estate
Wrexham LL13 9RF United Kingdom
Tel: +44 (0)1978 661155 Fax: +44 (0)1978 729990
Email: sales@imco.co.uk Web: www.imco.co.uk



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