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# GUIDE TO THE NEW FOOD WASTE DISPOSAL RULES IN ENGLAND

## What Your Organization Must Do To Comply With The New Rules And Save Thousands Of Pounds In Disposal And Other Costs Each Year


### Abstract

This paper provides a summary of the new food waste rules in the Environment Act 2021 which come into effect by April 2025. It provides a road map in plain English for commercial organizations producing food waste, to help them understand what they need to do to comply with the law and minimize the costs and risks involved in changing from current operations including an 8-Point Plan of Action. It also includes a review of alternative technology which will be compliant.



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## The Background – In Brief

The Environment Act, which became law in 2021, acts as the UK's new framework of environmental protection. As the UK is no longer in the EU, the Environment Act 2021 replaces previous EU rules. It covers rules on nature protection, water quality, clean air and importantly as far as this paper is concerned on waste management, particularly food waste management. Many of the rules in the Act have already come into force.

**On 17th May 2024, the Government announced that the rules as they affect commercial food waste and its separation which came into effect on 1st April 2025, with a few exceptional areas.**

## The Key Change To Food Waste Rules – And Why That Could Be a Problem For Your Organization

As far as food waste is concerned, the new Environment Act 2021 incorporates broadly the same restrictions that Scotland introduced in 2014 and applies them to England. It applies to household food waste as well as commercial food waste, but for the purposes of this paper we are only looking at the commercial sector, including hospitals which are large producers of food waste.

- Food waste is classified as a ***"recyclable relevant waste"*** which ***"must be collected separately for recycling"***. Those last two words are important: it means that you must present food waste to a collector, likely in a wheelie bin. If you are not already doing this, you will need to start.
- Food waste is not allowed to be mixed with general, green or dry recyclables (cardboard and plastic).
- The definition in the law that food waste "must be collected separately" means that you can no longer put it down the drain. **Macerators** (also known as food waste disposal units), which chop up food waste and flush it into the drains will not be compliant and are effectively banned.
- And other technologies such as **liquidizing digesters**, also known as **enzyme digesters** or **waste-to-water units** which turn solid food waste into a liquid slurry with the aid of enzymes and hot water and flush it into the drain will also not be compliant and are also effectively banned.




**The text from the legislation can be found here in Section 57, paragraph 45AZB of the Environment Act 2021: https://www.legislation.gov.uk/ukpga/2021/30/section/57/enacted*

In other words, if you are using a macerator or a liquidizing digester (sometimes also wrongly referred to as an aerobic digesters) these will be effectively be banned and you'll have to put your food waste in a wheelie bin or compactor and have it collected separately from your general waste and any other recyclables.

For many this is a sea-change. It will affect thousands of organizations throughout England such as:

- Hospitals
- Universities
- Schools
- Hotels
- Restaurants
- Pubs
- Catering organisations
- Facilities managers involved in catering such as Sodexo, Compass, Interserve, Vinci, Engie and others

If you work for one of these organizations, then you could well have to change your working practices, and quickly.

## What If I Ignore the Rules, What Then?

If you carry on as if nothing has happened:

1. **It's the law!** Non-compliance with the law isn't an option, so it's bit like driving while using a mobile phone, you might get away with it for a while, but you'll probably get caught sooner rather than later.
2. **Staff and contractors refusing to co-operate:** Your Health & Safety adviser, union representatives and your waste contractor among others will point out the non-compliance. Staff will refuse to continue using the old, now illegal equipment (and rightly so) and your waste contractor will refuse to collect food waste that continues to be mixed with general or other waste.
3. **Failed accreditations:** You will fail any environmental accreditation audit such as ISO14001 (Environmental Management System).
4. **Fines:** The law makes provision for fines to be imposed. The size of these fines is not yet established but based on the Scottish legislation passed in 2014 fines started at £10,000 following an enforcement notice from the Scottish Environmental Protection Agency. The Environment Act creates a new regulator, the Office for Environmental Protection whose job it will be to enforce the new rules.

Clearly, none of this is desirable.

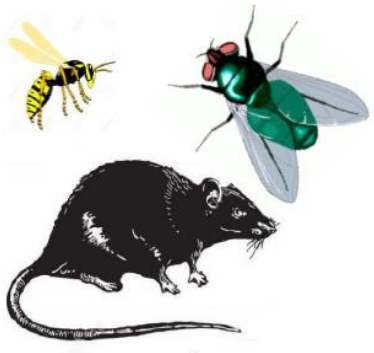
## If You Are Using a Macerator Or Liquidizing Digester What Are The Alternatives?

### 1. Wheelie Bin Removal of Food Waste:

This is the most common and easiest to establish alternative to a macerator or a liquidizing digester. Wheelie bins are universally available and waste collectors use them everywhere. You can put all the food waste in a bin, so no pre-sorting is required. The cost per bin often seems low in unit terms varying from about £8 to £15 a bin (based on 120L bins), but with technology you can reduce that substantially.

On the downside, wheelie bins full of wet food waste are extremely heavy (up to 100kg each) and kitchen staff need to be very careful when wheeling them around. There is certainly a manual-handling risk. Wet food waste in wheelie bins also starts to decompose immediately causing unpleasant smells and hygiene risks. If the bins are outside or in a shelter, they will attract vermin and pests, particularly in summer with higher temperatures. As a consequence, they will need to be emptied every day or every other day increasing the number of vehicle movements on your site.

*Heavy, smelly bins…*



*Vermin and pests…*

Many organization that have already switched to wheelie bin collections of food waste have seen their pest control bills soar as the bins attract vermin.

### Composters:

All modern composting units work on the same principal of mixing wet organic waste (food or green waste) with a carbon source (woodchip typically) and allowing the bacteria within the food waste to decompose the material naturally. The food waste is loaded at one end of the machine with the woodchip and is moved slowly along the chamber, which can be several metres long until it eventually is turned into dryish compost.

No wheelie bins are required, so there are no disposal costs if you are intending to use the compost yourself but you will need an Environment Agency exemption to put the

composted food waste on your grounds as the law technically says you need to present it for collection.

But using a composter is not suitable for everyone. The immediate area around the unit is very smelly and attracts flies and wasps, despite claims from suppliers. They often include extraction pipes to take the smell away but every time the loading door is opened, smells get out. The composting unit will definitely need to be located away from hygienic places such as kitchens which means the food waste has to be moved to the machine every day which could be in a nearby building.

The decomposition process will take up to six weeks, although some units claim to be able to do this in two weeks. What do you do with the resulting compost?

For organizations generating hundreds of kilogrammes of food waste a day, composting may not be practical as the size of the composter required could be very large. For example, a 500-bed hospital generates an average of 275kg of wet food waste every day, that's about four 240L (household size) wheelie bins. That's nearly 2 tonnes a week or 28 wheelie bins' worth.

- **Aerobic Digesters (not to be confused with liquidizing digesters which are also sometimes referred to as aerobic digesters)**

Aerobic means 'with oxygen'. Essentially, these are rapid composting units that use enzymes to speed up the decomposition process to reduce the volume of food waste by up to 80 or 90%.

This will reduce the number of wheelie bins you need by the same amount, but you will still have to have the final residue collected by a waste contractor.

They can be tricky to manage. It will take typically up to three days for certain types of food waste to decompose to a compost-like material which will be about 20% of its original weight. As an example, of every 100kg of food waste loaded, only about one third can be removed after 24 hours, which reduces the loading capacity. Some food waste takes longer than others, so these figures can vary.

As with composters, the food waste inside is decomposing so every time new wet food waste is loaded, the lid has to be opened and the smell of the decomposing food waste from being loaded earlier escapes. As a result, it is not acceptable to have these units in kitchen areas. The smells attract flies and the atmosphere around them can be unpleasant. Nevertheless, you would be compliant with the new rules provided the drawbacks are understood.

Beware of some manufacturers who call their liquidizing digesters 'aerobic digesters'. If they are turning food waste into liquid and then putting it down the drain, these are liquidizing digesters and will effectively be banned from 2025.

Beware too of products called 'bioprocessers'. This is a misleading catch-all term which doesn't distinguish between aerobic digesters and liquidizing digesters. Both these technologies use enzymes to break down the cell structure of food waste but liquidizing degesters also add hot water to flush the slurry into the drain.

- **Food Waste Dryers**

A food waste dryer mixes the food waste in a hot air supply to remove the water content from food waste which is about 80-90% of the total typically. The water content is evaporated as steam within the unit and is recondensed into water during the process which goes into a standard sink drain. The cycle takes about 12-16 hours turning the wet food waste into a dry powder a bit like instant coffee.

No food waste goes into the drain system. The unit is sealed so no smells get out during the process which also sterilizes the food waste so the resulting dry power has virtually no smell and could be stored for weeks. No water supply is used. All types of food waste can be loaded with the exception of large bones so no pre-sorting is required. The dry powder is about 10-20% of the weight and volume of the original wet food waste. This dry powder is disposed using wheelie bins by a waste contractor and taken to an industrial anaerobic digestion (AD) plant, or industrial composting or waste-to-energy facility. The cost of disposal in wheelie bins is 10-20% of the cost of disposal of wet waste.

Unlike aerobic digesters described above, 100% of the food waste loaded is processed and discharged every day, leaving the machine available to be fully loaded the next day.

## Which Option Is The Best?

There are several reasons why a food waste dryer may be the best solution as opposed to composting, aerobic digestion or simply putting wet food wate in bins.

### *Hygiene*

Most food waste is generated in, or returns to kitchens, either as preparation waste or as leftovers from serving and finally, leftovers from consumers or patients. It is safer and more hygienic to use a technology which ensures that there is the minimum risk of contamination and can be sited in the kitchen. Food waste dryers remove the water content from food waste overnight (typically 80-90% of the total weight) by heating it to around 80°C. The resultant dry powder is therefore sterile and poses no risk. Wet food waste in wheelie bins starts to decompose immediately, while food waste in composters and aerobic digesters is similarly decomposing throughout its cycle which lasts from three days up to six weeks.

### *Operational Flexibility*

Because the food waste is sterilized in the dryer, the dry powder can be kept for a long time (weeks if necessary), much longer than wet food waste in wheelie bins which starts to go off immediately. And because there is only 20% or less of the original food waste, collections can be arranged once a week or less frequently. Food waste dryers can be sited in the spot where the macerator was located but aerobic digesters and composters need an alternative location away from the kitchen area.

*Reduced Carbon Footprint*
By reducing the amount of food waste to be transported onward to a recycling facility by 80%, there is an 80% reduction in vehicle movements which has a substantial positive improvement in carbon footprint. Composing units on site give off methane, a more powerful greenhouse gas than CO2 and cancels out to a greater extent any savings in reduced transport costs.

*Eliminated Risks From Vermin And Pests*
By sterilizing food waste in the overnight cycle, there is no wet food waste decomposing in wheelie bins which can attract vermin and pests. One Midlands hospital in 2022 had an increased pest control bill of £20,000 directly as a result of putting their food waste into bins. Vermin and pests are always there but minimizing the risk is important.

*Reduced Manual Handling Risks*
Heavy wheelie bins of wet waste are a clear manual handling risk. A full bin can weigh between 60kg and 100kg and is easily tipped on the two wheels. By reducing the number of wheelie bins by 80%, there is a corresponding reduction in manual handling risk.

*Accepts Compostable Food Waste Bags*
Compostable food waste bags are made of dextrose starch and disintegrate in the drying process, so if you need to use these bags to move food waste in caddies to the dryer unit, there is no need to empty the bags. Compostable food waste bags cannot go in aerobic digesters or composters, (ironically, because the plastic wraps around the spindles of the machine jamming them before it has a chance to decompose).

*No Pre-sorting Of Food Waste Types*
The dryer will accept all types of food waste with the exception of large bone joints. By contrast, an aerobic dryer will not break down some more solid items such as broccoli and cauliflower stalks.

*Easy To Use*
Food waste dryers are 'batch drying units' which means that you fill them to the mark, shut the lid and turn them on. The rest is automatic. The whole of one day's food waste is processed in one overnight cycle of 12 -16 hours. Aerobic digesters are more complicated because the decomposition rate is variable depending on the type of food waste, so the amount which can be loaded will depend on the amount which has decomposed which can vary by 50% from one day to the next. They also take up to three days to reduce the food waste by 80%.

*A Minimum 80% Reduction In Disposal Cost*
Food waste dryers reduce the wet food waste to a dry powder, 20% or less of its original volume and weight, which means that the cost of transport of the material for recycling is reduced correspondingly.

*Food Waste Dryers Are Already In Use Throughout The UK*
Food waste dryers are in use in the UK in hospitals, hotels, the prison service and military barracks. They were the main piece of food waste disposal technology adopted by NHS Scotland to reduce disposal costs in Scottish hospitals when the Scottish rules banning food waste in drains and the use of macerators happened in 2014 and they are now in use in the NHS in England.

## Where Is Food Waste Recycled?

Most food waste in the UK, when not going into the drain system from a macerator, is recycled in one of three places, although some does still go to landfill.

1. Anaerobic Digestion (AD) Plant

AD is the most popular and favoured option. AD plants take organic waste and add organic polymers to create biogas which is used as a renewable fuel. Dried food waste is a very stable ingredient and can help the AD plant to get the right consistency. About 80% of food waste sent for recycling goes to anaerobic digestion whether dried or wet.

2. Industrial Composting Facility

Dried food waste includes all the mineral ingredients like nitrogen and potash while bacteria and pathogens like E-coli and salmonella have been destroyed in the drying process. At the composting facility, it is mixed with other food and organic waste to produce commercially saleable compost. About 15% of recycled food waste ends up here.

3. Incineration at a Waste-to-Energy Plant

Older incineration plants are giving way to modern waste-to-energy plants which generate power for local communities by burning waste. Dried food waste from the Eco-Smart Food Waste Dryer has a very high calorific value and burns very efficiently although to date less than 5% of recycled food waste treated this way.

There are specialist food waste collectors, but most waste contractors will also collect food waste, whether dry or wet. Where they send it for recycling will depend on what contracts they have in place with industrial composting, AD or waste-to-energy plants, and how close these are to their or your location, as transport costs are a key element of the pricing.

You will be charged per bin collected so reducing the number of bins collected will reduce your costs. The cost will include the transport, the gate fee which the waste collector must pay to the recycler (such as the AD plant), and the waste contractor's profit margin.

There is no reason these days for any food waste to go to landfill but you should insist on an audit trail from the waste collector to satisfy yourself that your food waste is being recycled and not landfilled.

## What Should I Do Next? Your 8-Point Plan Of Action

1. Take action now! The legislation has already come into effect so there is no time to lose.

2. If you are using a macerator or liquidizing digester, it will need to be decommissioned before the live date. You can continue to use it up until that time.

3. Work out how much food waste you generate. If you have been using macerators or liquidizing digesters this may not be apparent. The simplest method, using the minimum of technology is to get a set of scales into your kitchen and weigh every piece of food waste you generate and record the amounts in kilogrammes.

   You should construct a spreadsheet similar to the one below based on meal (breakfast/lunch/dinner) and day of the week. Measure the results for two weeks which will give you:

   a) Total amount per day

   b) Maximum amount per day.

| Weight of food waste per meal, per day | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Day | Mon | Tues | Wed | Thu | Fri | Sat | Sun | Total |
| B'fast | | | | | | | | |
| Lunch | | | | | | | | |
| Dinner | | | | | | | | |
| Total | | | | | | | | |

   Knowing the maximum amount per day is vital for specifying equipment capacity because you will want to process each day's food waste every day, without some being left over for the following day.

4. Estimate the cost of disposing of food waste via the waste contractor. Take the weekly total and divide by 65kg to give you the approximate number of 240L wheelie bins you are likely to need.

5. Get prices and timescales to decommission and remove your macerator unit. Update your timetable accordingly.

6. Get purchase and lease/rental prices for alternative equipment to reduce the cost of disposal via a waste contractor and delivery times. Base savings of reduced wheelie bins on 20% maximum of the number of wheelie bins for wet waste required. These figures are indicative: you should obtain your own figures from your suppliers.

   E.g. 150kg of wet food waste generated per day = 54,750kg per annum

   54,750kg divided by 65kg = 842 240L food waste wheelie bins

   842 food waste wheelie bins x £10 (the price varies throughout the country between £8 and £15 per bin) = £8,420 per annum

Reduction through use of (food waste dryer) technology = c. 80% = £6,736 saving each year

This does not include elimination of vermin and pest risks, manual handling risks from reducing wheelie bins.

Update your timetable based on delivery timescales. Food waste equipment is made to order and is not available from stock.

7. Place orders for decommissioning, new equipment and appoint a food waste contractor if you don't already have one.

8. Install new equipment, train staff, put PUWER risk assessments in place for the new operation.

## Further Information

The text from the legislation can be found here in Section 57, paragraph 45AZB of the Environment Act 2021:
https://www.legislation.gov.uk/ukpga/2021/30/section/57/enacted

For more information about food waste dryers go to:
https://www.bergmanndirect.co.uk/food-waste-dryers

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