



The Environmental Benefits of Food Waste Disposers

● Your Questions Answered



The food waste disposer is more than just a time-saving appliance.

Q What's Wrong with Putting Food Waste in the Garbage?

- A Putting food waste into landfills is environmentally problematic:
- Decomposing, it produces methane, a potent greenhouse gas.
 - Collected in trucks and shipped to landfills, it decomposes and produces acidic liquids that can contaminate ground water.
 - Stored in buildings, it generates odors and bacteria.
 - Piled in bags on sidewalks, it attracts vermin.
 - The trucks that carry food waste to landfills spew diesel fumes into the atmosphere.



Food waste disposers play a net positive role in the environment.

Q Why is Sending Food Waste Down a Disposer Better?

- A
- Reduces burden to landfills.
 - Food waste is on average 70% water, so it makes sense to send it to water treatment plants.
 - Modern disposers like the Evolution Excel™ can pulverize nearly 100% of scraps.
 - Numerous studies conclude that the use of food waste disposers does not hurt sewer systems.
 - Most modern waste water treatment plants convert food scraps into fertilizer and soil conditioner.
 - The energy potential in the food waste can be captured and used to generate power and electricity at the waste water treatment plant.



Q Are There Other Community Benefits?

A With garbage collection and disposal a major issue for communities, making food waste disposers part of the solution can benefit a municipality economically.

- In most cases biosolids extracted from the waste stream in treatment plants are processed into fertilizer that can be applied to land as soil conditioner.
- Waste water treatment plants may capture methane generated during treatment and recycle it as power for the plant itself or for other facilities.
- In contrast, landfills face logistical issues with methane recovery due to acreage, methane generation throughout the site, and the ability to recover only some of the methane generated.
- Using a disposer actually decreases a household's greenhouse gas emissions, according to studies in the United Kingdom and Australia. For more information on these studies, visit www.insinkerator.com



Q What is the Environmental Impact of Food Waste Disposers?

- A Food waste disposers themselves have a modest environmental footprint:
- Water consumption is about 1 gallon per person per day – about the same as a single toilet flush.
 - Based on average household use for a year, electric consumption is about the same as a single 100 watt light bulb uses over three days.



Q Why Are We Talking About Environmental Benefits?

For these reasons, communities around the world see food waste disposers as an effective contributor to a holistic waste management program.

A As the world's largest manufacturer of food waste disposers, InSinkErator® obviously has an interest in promoting the environmental benefits of disposers. But you don't have to take our word for it.

- The environmental advantages have been demonstrated consistently by independent scientific studies all over the globe, including in the United States, Australia, the Netherlands, Germany, Italy, Sweden and Japan.
- Many of the studies are available on our web site: www.insinkerator.com





Food Waste Disposers and the Environment

- 1 Food Waste is Ground in Disposer
- 2 Waste Flows to Wastewater Treatment Facility
 - Biosolids Captured and Turned into Fertilizer
 - Methane Gas Captured and Recycled for use at Power Plant / Other Facilities
- 3 Fertilizer Created from Biosolids Applied to Agricultural Land
- 4 Land Produces Food and Cycle Begins Again

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The Environmental Benefits of Food Waste Disposers

Food waste disposers were invented nearly 80 years ago as a convenience for residential kitchens and cooks. Since then, they have become a standard appliance in U.S. kitchens and more recently have found growing acceptance internationally for a perhaps unexpected reason: concern about the environment.

Everything municipalities normally do with food waste is environmentally problematic: stored inside buildings it generates odors and bacteria; piled in bags on sidewalks it attracts vermin; collected in trucks and shipped to distant landfills it decomposes and produces acidic leachate that can contaminate ground water as well as methane, a potent greenhouse gas that is partly held to blame for global warming. And the trucks spew diesel fumes as they travel back and forth to the landfills. Nothing about this process is cheap, hygienic, environmentally friendly or sustainable.

Sending food scraps through a disposer is a more environmentally friendly alternative. The environmental advantages have been demonstrated consistently by third-party studies all over the globe, including in the United States, Australia, the Netherlands, Germany, Italy, Lebanon and Japan. Communities around the world have come to see food waste disposers as an effective contributor to a holistic waste management program. Here's a look at why.

DISPOSERS HELP RECYCLE WASTE

Food waste makes up about 20 percent of residential waste and even though it gets sent to landfills with other solid waste, it is mostly water - about 70 percent water and 30 percent solids. That high water content is what contributes to acidic leachate that can contaminate ground water. Food - like all once living things (dinosaurs included) - also has a high carbon content. That's why when it decomposes food waste produces green house gases, primarily methane, which is up to 25 times more destructive to the atmosphere than carbon dioxide, another green house gas.

While some landfills are attempting to capture methane gas, their acreage and the fact that methane is generated throughout a landfill, not just in one spot, mean the process is very inefficient. In a well-designed landfill, only about 66 percent of the methane is recovered and beneficially reused as fuel. The remaining 34 percent escapes into the atmosphere.

Currently about 41 percent of U.S. food waste goes to landfills. However, because food waste is mostly liquid, it makes more sense to pulverize it in a disposer and send it through sewers to municipal waste water treatment plants (or to septic systems). And modern disposers can pulverize nearly 100 percent of food waste, including bones, pineapple tops and apple cores (shark skin is one exception.) At treatment plants, solids are extracted from the waste water, and, in many cases, treated so that the remaining biosolids can be recycled and applied as fertilizer to agricultural land. Right now almost 60 percent of the sludge from U.S. waste water plants is processed into biosolid fertilizer. Interest in using many types of biosolids, such as corn and treated sludge, to produce energy is also growing.

Waste water treatment plants can capture methane generated during treatment and recycle it as power for the plant itself or for other facilities.



This diagram shows how food waste disposers fit into the environment. First, food and food scraps are put through a food waste disposer. At waste facilities, biosolids are then captured and turned into fertilizer; methane gas produced during treatment is captured and recycled to power the plant or other facilities. Finally, biosolid fertilizer is beneficially applied to agricultural land that produces food, and the cycle begins again.

FOOD WASTE DISPOSERS ENVIRONMENTAL FOOTPRINT

But what about food waste disposers' use of energy and water? Think about how often a disposer is run in a typical household. Studies have shown that using a food waste disposer does not substantially increase water consumption. The increase has been calculated at about 3/4 to 1.2 gallons per person per day - approximately the equivalent of a single toilet flush.

Disposers' electricity usage is estimated to cost less than one dollar a year.

Food waste disposers themselves have a modest environmental footprint: they are durable, long-lasting and require minimal maintenance. They are composed primarily of metal and can be recycled at the end of their useful life.

A variety of studies have also shown that using food waste disposers does not cause any harm to municipal sewer systems.

CONCLUSION

While some argue that composting food scraps is a superior solution to both disposers and landfills, it is not always a practical one, particularly for people who live in urban areas. It also presents challenges to anyone during the cold weather seasons. And in practice, cities that have tried to mandate separating organic food waste from other waste so that it can be collected and composted have not been able to enforce participation in that program.

There is no waste management silver bullet, but as the world's largest manufacturer of food waste disposers, InSinkErator® believes this appliance can play a beneficial role in managing waste in an environmentally responsible way.

SOURCES:

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Disposers May Present the Best Option for Food Waste Management Challenges

Landfill disposal

- Food waste, tossed in the trash, may generate odors and bacteria, and can attract vermin
- Garbage trucks emit diesel fumes, traveling both to and from the landfill
- Food waste decomposing in landfills generates a greenhouse gas called methane, which not all landfills capture efficiently
- Liquid from decomposing food waste mixes with other landfill materials to create a leachate which, unchecked, can contaminate ground water

Composting

- Meat and dairy products should not be composted
- Composting requires space and labor to tend the pile, to avoid the release of methane and leachate
- Cold temperatures inhibit compost activation
- Centralized composting generates transport vehicle emissions
- Food waste disposers complement composting by conveniently handling food waste that composting cannot

Disposal of food waste through a modern wastewater treatment plant

- Food waste disposers grind food scraps into fine particles, which flow through the sewer system to a wastewater treatment facility
- Screens and grates remove large objects before the wastewater moves to settling tanks where grease, oil and heavy materials are removed
- Then, microscopic organisms break down the remaining organic material in the water
- Finally, the water is disinfected before it is discharged into rivers, lakes or oceans
- The heavy, solid material (sludge) that is removed from the water is sent to a digester
- Plants equipped with anaerobic digesters use microorganisms that, when digesting the solids, release methane gas, which can be used to generate power
- A second product of the digestion process is the biosolids, which can be converted to fertilizer at the facility
- This fertilizer can be used in agriculture and home gardening in lieu of synthetic fertilizers

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