



Bio Reactor

Proposals for a circular economy

What is a circular economy?

So far Traditional linear economic system of "take", "make" and "disposal"

Answer to the future.

We consider "waste" as a resource, convert it into "resources", and build a circulating economy.

Bioreactor realizes a circular economy.



Description of bioreactor

Bacteria that ferment organic waste at high speed are called "recycled bacteria". "Recycled bacteria" is a collection of multiple natural bacteria such as indigenous bacteria and cultivated by our original manufacturing method. Bioreactor is a device that efficiently activates this "recycled bacteria" . (Bio Reactor, a device that makes organisms react scientifically).



PD-MN1



recycled bacteri



Bio Reactor mini 5



Bio Reactor chibi (School materials)

Overview of bioreactor

Both installation and running cost are low.

Please choose from an abundant lineup.

Model	Processing amount /Day (kg)	Size (mm)			Processing layer capacity (l)	One-time input amount (kg)	Electricity usage /Day (kWh)	Electric bill /Day (yen)
		width	depth	height				
Bio Reactor mini 5	10	1,000	650	850	32	5	3.08	47
Bio Reactor mini 10	30	800	510	780	69	10	3.76	56
PD-MN1	100	1,500	1,200	2,000	392	50	38.8	582
PD-MN50	500	2,700	1,400	2,300	1,696	250	194.9	2,926
PD-MN100	1,000	3,200	1,600	3,500	3,078	500	304.7	4,573

*Please see the price list attached separately for the price of the device.

*The amount of processing is an approximate guideline for processing in one day. It depends on the material to be processed and the environment (temperature, humidity, etc.).

*The amount of electricity used is a guide and will change depending on the environment.

*The size is a guide and is subject to change without notice. (To improve quality through development)

*We manufacture larger bioreactors than the above. Please contact us.



How to use the bioreactor

Processing amount

(fermentation processing is performed at high speed.)

It is a guideline that the amount of each model input at one time is treated with "recycled bacteria" at one time. You can put in the first time and put in the second time in 3 to 5 hours. The amount of processing that can be expected with two injections is the amount of processing per day, but fast-processing items can be input three times a day.

At night, it is dried to manage the health of the bacteria.

※"Recycled bacteria" are living things, and they may die if more materials than specified are added.

Deliverables can be used as compost or feed, and there is nothing to throw away.

The bioreactor is bio-type (processed by the power of bacteria). The difference from the dry type is in the deliverables (fermented waste).

Deliverables processed in the bioreactor are rich in good bacteria, fertilizers and nutrients, and organic waste is recycled as compost, fertilizers and feed.

○ No water supply or auxiliary materials are required, and there is no waste.

○ Easy to install.

Ideally, the bioreactor should be placed near waste.

(Because it is processed before the decay starts)

Install it in a place where there is no rain or wind, and

the installation is completed only by electrical work.



Food residues become compost and feed.

How to use the bioreactor 2

Disposable (general organic waste)

Swill (food residue), cut grass, vegetable waste, rice bran, rice husks, weeds, dead leaves, miscellaneous trees, factory food waste examples (meat, rice, fish bread, noodles, vegetables, fruits), food residues, Animal residue, animal excrement



Things that are difficult to process

Bone, shell, oil, chicken skin (takes time to process)



Things that cannot be processed

Vinyl, PET bottles, metal, tableware (You can remove what you put in by mistake later)

Things you shouldn't put in

Detergents, chemicals, tobacco, liquids (water, soups, oils, etc.) Spices or foods containing large amounts of spices

※ Do not use materials that may kill "recycled bacteria".

Precautions for use

- "Recycled bacteria" are aerobic bacteria, so-called good bacteria.
 - If there is too much water, anaerobic bacteria (bad bacteria) will increase and spoil. Pay attention to the amount of water.
 - When you grasp the cells and make rice balls, if you feel the water while keeping the shape, the water is too much.
In that case, you refrain from adding materials for a while and dry them.
It is necessary to replace it with a new "recycled bacterium".
 - It is recommended to replace the "recycled bacteria" regularly to keep the bacteria in a healthy condition. (Approximately 1 to 2 months)
- ※At the time of purchase, we will instruct the operator on how to handle it.



Demonstration experiment

Culture development using "recycled bacteria" began in April 2019, and we have confirmed our own experiments and demonstrations of food waste, chicken manure, cow manure, and turf.

Followings are some results of them .

Golf course mowing, test for residual pesticides

Document 1

The pesticide components of the cut turf were analyzed in 200 items.

As a result, a small amount of 0.05 mg of dithiopyll (herbicide) was detected in the green grass. I think this is because the herbicide was used on the green.

For heavy metals, all the standard values of "Ministry of Agriculture, Forestry and Fisheries" have been cleared.

Document 2

The fertilizer component of cow dung deliverables will be verified using the treated turf as a base.

(For safety reasons, green is not used)

The fertilizer component exceeds the recommended standard of the "Central Union of Agricultural Cooperatives".

Furthermore, the ratio of turf products to cow dung during processing is 10%.