CHUANTAI MACHINERY

Weifang Chuantai Machinery Co.,Ltd.

Product Presentation

Distributed Kitchen Waste Treatment Equipment

Content

Ⅰ Product Usage

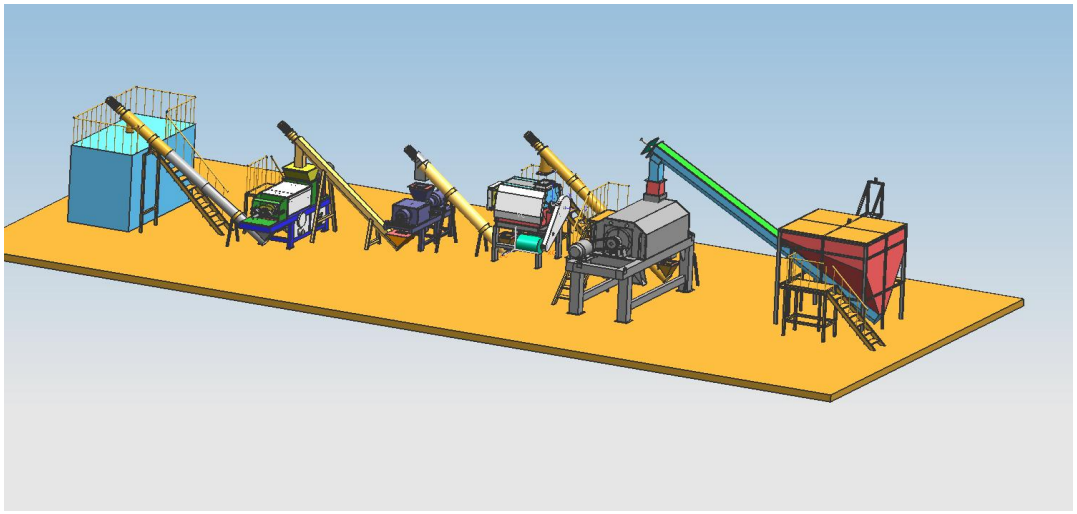
The distributed kitchen waste treatment equipment is usually installed in food waste disposal factory. After the recycling of kitchen waste, it can be used as raw material for fertilizer and can also be used for feeding.

Kitchen waste treatment equipment brings many benefits in the treatment of kitchen waste, including resource recycling, reducing environmental pollution, alleviating the pressure of urban waste treatment, improving food safety, promoting sustainable development, etc. These advantages make kitchen waste treatment equipment of great significance in environmental protection and resource utilization.

II Distributed Kitchen Waste Treatment Equipment Profile

Kitchen waste treatment equipment is divided into distributed kitchen waste treatment equipment and intelligent integrated treatment equipment according to the amount of waste generated and processed. The former is centralized for processing and has a large processing capacity, while the latter is used for on-site treatment of food waste and can be customized according to project requirements.

Distributed kitchen waste treatment equipment system mainly consists of collection hopper, chain scraper conveyors, integrated crushing and sorting machines, pulping machines, centrifugal impurity removers, oil-water separation systems , fermentation and degradation machines, organic waste gas treatment equipment , and intelligent control systems.



Advantage

1. **High integration**: equipped with systems for aggregate, sorting , transportation, pulping , impurity removal, squeezing and dehydration, fermentation, waste gas treatment, oil-water separation, safety and control.
2. **Significant reduction effect**: the reduction rate of organic waste can reach about 90%.
3. Resource utilization : Oils and residues can be recycled and utilized industrially. residues can be used as organic raw materials and can be utilized on-site in rural and urban areas.
4. Low processing cost: The treatment reduction effect is obvious, with a reduction rate of 90% (slightly different for different moisture contents), and rapid fermentation reduces processing time.
5. Easy operation: automatic control , real-time display and monitoring of the entire operating status.
6. Convenient management: Implement intelligent management and use the data management platform to realize automatic measurement, recording, and data processing functions. Remote supervision can be achieved through the terminal, providing a safe and reliable basis and monitoring platform.
7. Safety and environmental protection: harmless treatment is achieved throughout the process , with no impact on the surrounding environment.

III Working Principle

As shown in the figure above, the kitchen waste collection and transportation vehicles collect the garbage and enter the processing center . The collection and transportation vehicles unload the materials into the collection hopper, which drains the food waste. The liquid enters the buffer box, and the solid enters the crushing and sorting machine through the chain scraper conveyor. The sorted inorganic matter enters the garbage recycling box, and the organic matter is transported to the food waste pulping machine. After pulping, the food waste can be used for insect breeding, or it can continue to be removed from impurities, squeezed and dewatered, and then enter the fermentation system for degradation treatment. The liquid is transported to the oil-water separation system through a pump for oil extraction treatment. The organic waste gas generated during the operation of the equipment is collected by the equipment and uniformly treated and discharged.

The kitchen waste degradation system uses fermentation equipment and microorganisms to degrade organic matter into organic solid residue - organic fertilizer or nutrient soil (mainly protein). It can be used as a green belt in the community, and the crude oil after separation can also be sold outside , and its value is relatively high.

Ⅵ Working Details

The kitchen waste treatment process can be reasonably adjusted according to the project requirements. The treatment process of this project is as follows:

1. Weighing system : After the food waste collection and transportation vehicle enters the site, it is first accurately weighed on the scale installed at the entrance of the factory before entering the treatment plant . After unloading is completed, it is weighed again on the scale before leaving .

Ⅴ Working Details

2. Collection hopper:

After weighing, the food waste collection and transportation vehicle pours the food waste into the collection hopper. The hopper is equipped with an opening and closing cover, which can be opened and closed according to the working conditions to prevent the spread of waste (odor) gas. The bottom of the hopper is equipped with a lifting conveyor to transport the food waste to the crushing and sorting machine. The conveyor can realize the drainage function, and the separated liquid enters the liquid buffer box for storage.

Ⅴ Working Details

3. Screw conveyor :

The screw conveyor runs from the bottom of the hopper to one side of the hopper, and can convey all the food waste in the hopper to the crushing and sorting machine. The conveyor in the complete set of processing equipment are mostly screw lifting conveyors, and the same type of conveyors are no longer described separately.

There are two kind of screw conveyors, one the with shaft, the other is without shaft. They are used in different condition.

Ⅴ Working Details

4. Integrated crushing and sorting machine:

After the kitchen waste enters the equipment, the crushing system quickly crushes the waste into small pieces. The crushed waste enters the sorting system, and the organic matter and other waste are separated by the sorting system . The other waste is transported to the transfer barrel, and the organic matter is transported to the lifting conveyor.

5. Screw conveyor :

Organic matter is transported to the pulping machine through this screw conveyor.

Ⅴ Working Details

7. Food waste pulping machine:

The food waste is evenly transported to the feed port of the food waste pulping machine through a conveying device. After entering the machine, the food waste is cut and crushed by a high-speed rotating array of knives. After a series of treatments inside the pulping machine, the food waste is discharged from the discharge port to achieve the pulping effect.

8. Centrifugal cleaner:

After pulping, the food waste enters the centrifugal cleaner through a screw conveyor for separation, and the separated liquid is collected into a buffer box through a pipeline.

Ⅴ Working Details

9. Screw press:

After impurities are removed, the material enters the screw press through a screw conveyor. After being dewatered by multi-stage screw pressing, the liquid is collected into the buffer box through a pipeline, and the solid enters the fermentation and degradation system through a screw conveyor.

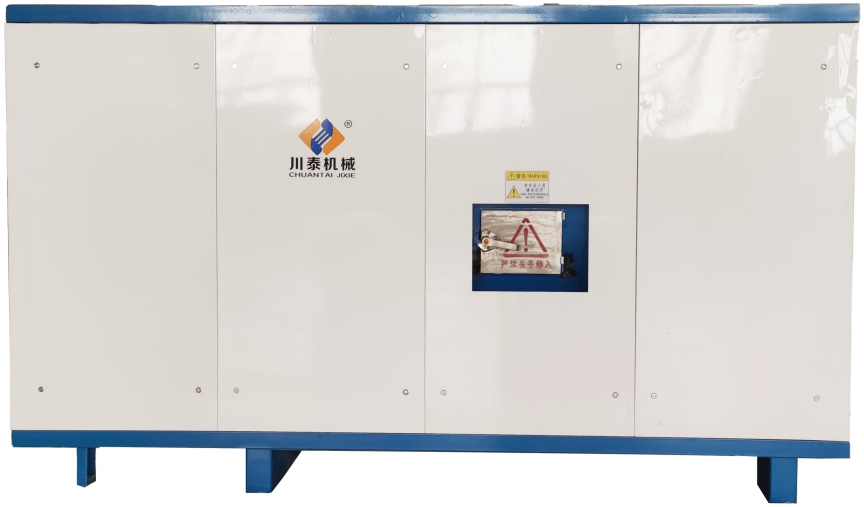
10.Fermentation and degradation system:

Before the dewatered food waste enters, operate according to the instructions for use of the strains, and then mix the strains with the food waste. When the machine is turned on for the first time, a small amount of sawdust needs to be added in advance (according to the moisture content of the food waste). The equipment has low energy consumption, and can be set up according to requirements for automatic heating, mixing, and feeding systems to allow the materials to fully contact with the air and microbial strains for rapid degradation reactions.

Ⅴ Working Details

10.Fermentation and degradation system:

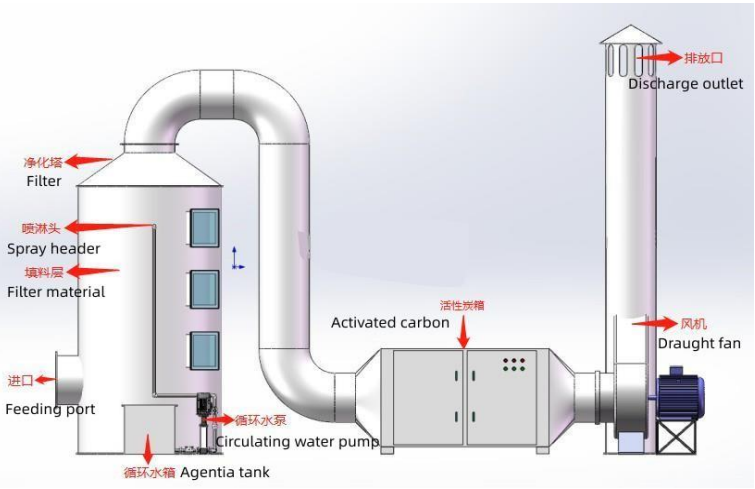
The gas inside the degradation chamber flows from the air inlet to the exhaust port and maintains a slightly negative pressure state. The gas generated during the treatment process is collected in a fully enclosed manner and enters the exhaust gas treatment system for deodorization. The bottom of the degradation box is evenly arranged with heating rods and heat conduction cutoffs to provide different temperature requirements for each stage of degradation and effectively reduce power consumption . It is equipped with a one-button automatic discharge operation .



Ⅴ Working Details

11. Oil-water separation system:

The liquid in the buffer tank contains a large amount of oil, which is pumped to the oil-water separation system by a pump. The liquid is first heated to about 80° C by a heating device to accelerate the separation of oil and water . The oil is separated by an oil-water separator and can be sold as crude oil. The oil-water separation system can be equipped and selected according to project needs (vortex oil-water separator or three-phase centrifuge).



12.Waste gas treatment system :

Based on experience and on-site conditions, as well as the complex and high-concentration characteristics of odor components generated by food waste, the design considers that odorous gases are mixed pollutants, and alkaline, acidic sulfur-containing pollutants and organic pollutants may all exist . This project uses a complete set of organic waste gas treatment equipment .

Ⅴ Working Details

12. Spray tower : Spray tower is a two-phase counter-flow packing exhaust gas absorption tower. The gas enters the exhaust gas absorption tower tangentially from the air inlet below the tower body. Under the power of the fan, the gas quickly fills the air inlet section space, and then evenly rises to the first-stage packing absorption section through the flow section. On the surface of the packing, the acidic substances in the gas phase react chemically with the alkaline substances in the liquid phase. Most of the reaction products are soluble salts that flow into the lower liquid storage tank with the absorption liquid. The incompletely absorbed exhaust gas continues to rise and enter the first stage . The first-stage spray section. In the spray section, the absorption liquid is sprayed out at high speed from the uniformly distributed nozzles, forming countless fine droplets that are fully mixed and contacted with the gas, and continue to react chemically. Then the acid gas rises to the second-stage packing section and spray section for an absorption process similar to the first stage . The second stage has different nozzle densities and spray pressures from the first stage, and the concentration range of the absorbed acid gas is also different. The process of two-phase contact in the spray section and the packing section is also a process of heat and mass transfer.

Working Details

12. The process is ensured to be sufficient and stable by controlling the flow rate and storage time of the exhaust gas scrubber. For some acidic gases with poor chemical activity, a certain amount of surfactant needs to be added to the absorption liquid. The top of the tower is the demisting section, where the absorption liquid droplets entrained in the gas are removed, and the clean air after treatment is introduced into the activated carbon adsorption box through the induced draft duct .

Activated carbon adsorption box : The gas is powered by a fan and enters the activated carbon adsorber under positive or negative pressure. The exhaust gas comes into contact with the porous activated carbon with a large surface area. The pollutants in the exhaust gas are adsorbed and separated from the gas mixture to purify it. The purified gas is finally discharged .

Working Details

13. Intelligent control system :

The control platform can be used to monitor and manage the equipment site and operating status in real time. The specific functions are as follows:
1. Realize real-time video monitoring of project operation site.
2. Through the remote monitoring platform and the Internet, you can use a computer to query the equipment operating status and monitor equipment operating data online, set equipment parameters remotely, and query and save historical data.
3. You can remotely operate the equipment, view the equipment operation configuration and actual on-site operation status, and query the equipment historical data records.
4. Through the mobile phone APP of mobile Internet, you can query the equipment on site or modify the equipment parameters and status.

Thanks

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