

## Why is HotRot Different?

HotRot is a uniquely designed high-efficiency composting system. Composting can be referred to as a biological oxidation process that takes unstable, putrescible waste and produces stable compost; it can also be thought of as biological combustion. Like any combustion or oxidation process it relies on energy (waste) and oxygen. It also produces heat through the oxidation process. It is imperative that one understands that heat is a function of the process not an input. Since the composting process is biological, moisture is also important.

Temperature is a poor indicator of compost performance – much like the temperature gauge in a car is a poor indicator of engine performance, the gauge (temperature) does not change much between driving round town in traffic to driving down the highway but the rate of combustion and the rate at which energy is converted is vastly different. HotRot is a composting system driving down the highway.

During the composting process moisture, CO<sub>2</sub> and heat are generated. If any of these are allowed to accumulate they will become inhibitory. The unique tine-bearing central shaft within a HotRot unit redistributes heat and moisture as it rotates. Excess heat, moisture and CO<sub>2</sub> are removed in the exhaust air stream. In traditional composting systems, excess moisture reacts with CO<sub>2</sub> and forms carbonic acid, this acidic moisture lowers the pH of the material that is composting and inhibits microbial growth. In addition, the excess moisture percolates down through the mass removing suspended solids and soluble nutrients. Because excess moisture and CO<sub>2</sub> are removed from a HotRot system in the exhaust air, carbonic acid is not formed, pH levels are higher, as are microbial numbers and the composting process is therefore more efficient. In addition, excess moisture does not strip or leach nutrients from the material; nutrients remain in the compost where they belong.

The tines on the central shaft also physically “erode” or scrape the surface of the material as it composts, this exposes fresh material to the action of the composting microbes, further speeding up the composting process. Grinding or shredding of food and animal wastes can generally be avoided. Finally, HotRot is a continuous process, waste is added frequently in small amounts, which means fresh material is instantly inoculated with actively composting material already in the unit – there is no “lag-phase”, again speeding up the process. All these advantages allow the HotRot system to produce stable compost<sup>1</sup> in as little as 10 days. The stable compost can be used without further maturation, significantly reducing the land area required for the composting facility.

The efficiency of the HotRot system is clearly demonstrated by the attached photos. The first two photos show the degradation of “compostable” tableware; one inside a HotRot unit with a residence time of 10 days and the other showing comparable degradation in a traditional static aerated container over the same time period.

The second pair of photos show input material in a HotRot feed hopper (a mixture of food and garden waste – source separated organics) and the resultant compost and screen over-size after only a period of 5.5 days.

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<sup>1</sup> Compost stability index 8 – inactive, highly mature, no limitations on usage (independent test results available on request)

### Compostable Tableware



After 10 days in a HotRot composting unit

After 10 days in aerated container

### Organic Waste after 5.5 days



Day 0 – Waste in feed hopper

Day 5.5 – Product from HotRot screened