

RF500 Application

Environmental Monitoring

Precision instrumentation
and monitoring solutions



Wireless Temperature Monitoring

Background

Wireless Temperature monitoring was required by a company with an in-vessel composting system which composts green and kerbside waste in just 8 weeks. This period covers delivery of the raw material, processing in the clamps and maturation to point of sale and takes place at a site with 20 composting clamps.

A mechanical shovel loads the shedder. A slow speed shredder fitted with a 150mm to 200mm screen is used for the shredding the green waste and food waste, this allows good blended of material and aids the composting process. Water, in the form of leachate is added here to moisten the material to be treated which is essential for effective composting. After the waste is shredded and blended the material is transported to one of the in-vessel buildings in Barrier 1. Each vessel holds approximately 175 tonnes depending on the bulk density of the material.

It is important for air to be introduced into the material to encourage aerobic activity. The air is forced through the mass by patented ground level air ducts. Once closed, the roof creates a small void above the material creating good air circulation, temperature profiles, odour barrier and prevents scavenger activity.

As heat is essential for the composting process, RF500 wireless temperature monitoring was chosen as temperature probes can be inserted in to the clamps at different points to get a range of temperatures. Variations in temperature are expected at different monitoring points. The temperature data and time are recorded and temperature profiles are created.

To ensure that all bacteria activity ceases the material must maintain a minimum temperature of 60°C for 2 days. The temperature profile is a visible record that this has occurred. The material stays in this building (Barrier 1) for one week. To ensure that no cold spots occur the partly composted material is transferred to another in-vessel building (Barrier 2) for a further week, again, 60°C must be reached and maintained for a minimum of 2 days.

Benefits

- Robust system with no data loss
- Ability to monitor and profile temperatures throughout the composting cycle
- RF500 Gateway capacity allows for future monitoring requirements



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