

Aerobic activation the way nature intended

A novel composting product eliminates the need for windrow turning by stimulating oxygenating processes within the soil. **Charlotte Wilson** explains



any composting companies in the UK are investing in capital equipment and paying high energy costs to ensure aerobic microbial processes occur within windrows. However, a technology has arrived on the scene which eliminates the need for turning and supplying oxygen with turbines.

Plocher Komposter (PK) is a natural, biological solution to imbalances in soils and green waste. Relying on nature and natural life cycles, it is ecological, economical and bio-dynamic in its approach, and was developed to stimulate aerobic biological processes in all types of solid waste material.

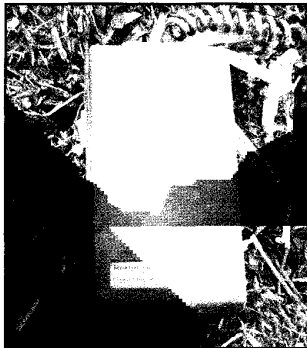
It creates strong aerobic decomposition in green waste and compost without the need for turning or aerating the windrow mechanically. As a result, odours change and are reduced. Because windrows remain undisturbed, humus levels are significantly increased.

Natural solution

PK is made from a natural carrier material – calcium carbonate – which has been vitalised with specific properties to activate and accelerate strong aerobic microbial activity in green waste, manures, soils, sewage sludge and food waste.

It continuously and permanently transfers the specific properties endowed upon it – when it is added to water, the energy of oxygen and other properties held in it are transferred to the water. When applied across the windrow, these properties are transferred and stimulate aerobic biological processes.

Many studies have taken place to measure the benefits. Last year, the Agrochemical Federal Office of Vienna in Austria analysed soil samples and found that the humidity of a PK-treated windrow was 57.1% (compared to 69.3% untreated). In addition, the capacity of water retention for a



Temperature reading of the untreated compost



Temperature reading of the Plocher treated compost

PK-treated windrow was 98.8% (compared to 45.1% untreated) and dry matter for a PK-treated windrow was 42.9% (compared to 30.7% untreated).

Compost treated with PK consistently changes macro nutrient levels in the organic material, so that nutrients remain in compost, ready for assimilation by plants rather than being lost to the atmosphere or washed out as leachates.

This was shown by the Biological Chemical Institute of Hoppengarten in 1996 where nitrogen deposits with PK were measured at 44.5% compared with 4.8% in untreated. In the same research, the amount of denitrification was 22% with PK versus 46% without, which is a clear environmental benefit.

Commercial composters talk about the requirements for aerobic decomposition: carbon, nitrogen, oxygen and water, and the carbon and nitrogen ratio. They know they must supply a minimum of 5% oxygen and the higher the oxygen level is maintained the quicker composting occurs. However, aerobic microbes require other nutrients to thrive and multiply optimally, which are not always present. PK allows a greater tolerance of these ratios within the material being composted because it supplies the

optimum quantity of macro and micro nutrients needed to feed the optimum number of microbes.

Trials undertaken

Last year, Swift Nature worked with AWO Bedford & Partners in Cambridgeshire, where 500 to 700 tonnes of onions and citrus fruit are composted each week. Pungent odours created during shredding and turning caused complaints from local residents.

AWO tried PK to reduce odours, mixing it with water and spraying it on newly arrived onions and oranges. The company found that with PK, the material could be shredded for

composting most of the day whereas before, it was too uncomfortable to shred for more than an hour at a time.

When it came to turning the windrows, the odour was reduced and had changed to a sweeter smell. Chemical analysis was undertaken on samples taken from the PK-treated and untreated windrow, and showed ammonium nitrogen was 64% higher in the PK-treated windrow. In addition, total nitrogen rose by 24%, while other nutrient levels also increased: total phosphorus by 67%, total sulphur by 13% and total calcium by 33%.

Nutritious benefits

These are beneficial to the compost as a growing medium, being essential nutrients for strong plant and crop growth, resulting in the use of fewer artificial fertilisers in gardens and on farmland. Also, E-coli levels were 23% lower in the treated windrow which indicates that conditions were more aerobic.

On the day samples were taken, temperature readings were taken. The treated windrow (78.1°C) was 10°C higher than the untreated windrow (68.1°C) despite the fact they were turned on the same day, indicating there was more microbial activity in the former (see pictures).

“When it came to turning the windrows, the odour was reduced and had changed to a sweeter smell”

In addition, the mean temperature was 61.4°C in the treated windrow compared with 55.7°C in the control. When comparing the temperatures, the only time the temperature fell in the treated windrow was during turning, whereas in the untreated windrow, the temperature fell before turning.

Additionally, every 200 to 250 tonnes of shredded fruit creates around 9,000 gallons of juice which collects in a lagoon. This becomes anaerobic, generating an odour. AWO used some PK in the lagoon. Within a week, small bubbles were rising through the juice and wildlife such as water skates had colonised the water. Subsequently, AWO carried out two trials with one of the bacterial products on the market – strong odours returned and complaints rose again.

PK has been manufactured in Germany for the past 15 years and is now available in the UK through distributor Swift Nature. *Charlotte Wilson from Swift Natur*


SAI-PAC (UK) 10 YEARS UK LOCAL AUTHORITY EXPERIENCE

‘TO OUR CUSTOMERS WE ARE MORE THAN JUST A BAG’!...



Poly House, 88 Park Road, Ilford, Essex IG1 1SF UK
 Tel: +44 (0) 208 553 4050 • Fax: +44 (0) 208 553 5151
 Email: sales@saipac.com
 Web: www.saipac.com • Web: www.biosacks.com

Din-Certco & ‘OK’ Compost approved fully compostable sacks!...



Is your site causing a stink?

air spectrum
 ENVIRONMENTAL

Odour control and dust suppression specialists
 www.airspectrum.com
 Email: sales@airspectrum.com
 Call 07092 844472