

New Products New Earth Expansion in the UK Diary of a Compost Plant Practical Reports

November 2006 "Entsorga"

New Earth Solutions Canford composting and MBT facility

expands to **50,000t/yea**r with the addition of 4 new composting halls, a second reception hall and aerated maturation bays.

The New Earth facility was designed in 2001 when composting of Animal By Products was prohibited in the UK under the Animal By Products Order following the outbreak of foot and mouth disease.

Drawing on best practice from around the world, New Earth Solutions worked closely with the State Veterinary Service to design and build the first large scale housed windrow composting facility to be approved under the UK Animal By Products Order 2003 and EC Animal By Products Regulation ECN1774-2002. The New Earth facility provides enhanced treatment of organic wastes to eradicate pathogens under a process of Hazard Analysis (HACCP) as defined under The Food Safety Act.

Today the New Earth system is approved to treat Category 3 Animal By Products (raw meat and fish) and Category 3 catering waste to produce a high quality compost. The New Earth system has also proven highly effective for Mechanical and Biological Treatment and can guarantee a minimum of 70% reduction in the biodegradability of mixed household waste prior to landfill disposal.



In addition to significant capital cost savings, the use of mobile equipment reduces down time, improves health and safety for maintenance and is easy to clean between turning batches as required by the ABPR. The automatic ventilation system in the buildings removes steam and introduces clean air so that machines and operators can work comfortably.

Build

Through buildings of 9,000m2, the facility processes 50,000 tonnes of biodegradable



The expansion of the Canford facility has taken place over the last 12 months with construction carefully choreographed to allow the facility to continue operating. The facility is now running at full capacity taking 50,000 tpa of source separated organic waste from Bristol and local green waste and mixed household waste from Bournemouth. Mobile equipment was chosen over an automatic turning system as it can be removed for cleaning and maintenance. waste per year. Air is extracted from underneath the windrows via the COMPOair aeration ducts and also through a roof mounted ventilation system. The exhaust air is then passed through a scrubber and into a large biofilter prior to release to atmosphere.

The patented airflow system creates a "head wind" towards the turning machine that maintains visibility for the driver. The clean air introduced in front of the machine and exhaust air is collected behind. Depending upon the direction of travel and location of the machine within the composting hall, air flow can be directed by a remote control system operated from within the turning machine.

"We will be building a lot more of these plants over the next few years to help the UK government meet its targets", Bill Ridale, Director and owner of New Earth Solutions Ltd stated in a recent BBC television interview. The UK will not meet its requirements under the EU Landfill Directive unless a lot more treatment capacity is brought on line soon. The UK is producing approx 30million tonnes of household waste per year and most of it is still going to landfill.

In addition to design expertise, Compost Systems supplied the compost aeration system, wireless temperature monitoring and process control systems, essential for full sanitisation and enhanced compost product quality.



More then 2,000m of COMPOair aeration ducts were installed At the Base of the Biofilter, a 1,500m² Grid was installed, to ensure even air distribution through the filter Medium.

Construction Starts in Kent

Last year, New Earth Solutions was awarded the contract to compost 50,000 tonnes of source segregated household waste for Kent. Planning permission was granted relatively quickly as New Earth was able to demonstrate high levels of environmental control. Ground works are nearing completion and construction will commence shortly. The first phase of the development is expected to start receiving waste late Summer 2007 and there is a second phase expansion doubling the size of the facility to follow shortly. The facility in Kent will also be receiving waste from Essex until a facility can be developed there. F

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Push walls

In 1998 the compost plant Kaninghof was one of the first plants using the COMPOnent aeration system. In spring 2006 Hubert Seiringer decided to increase the capacity of his 7,000 tonnes Biowaste plant to accommodate an additional 10,000 tonnes for sludge composting. Working from experience the site has been designed to process the first odorous stage with negative aeration, while the second stage of the process will operate with positive aeration.



President Seiringer Umwelttechnik

Austrian Composting Association

Chairman of the

On 8 August this year the plant started operating after a building time of only 3 months. With the use of the new aeration system the total capacity of the facility has almost tripled.



Finished after just 3 Months !!



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And the platform ready for Tarmac

The first New Earth "type" composting plant in Austria will start composting in 2007 with a capacity of 14,200 tonnes per year, operated by Posch GmbH.

The finishing touches are being carried out at the facility in Terniz, Austria. By the end of the year the New Earth "Type" composting facility will start operating after a build of just 6 months. The facility consists of a reception area, a three windrow composting hall with negative aeration, and three, 100m long aerated windrows outside.

Part of the old composting platform was used to form a new reception area, and a new 1,500m2 composting hall was constructed. The big advantages of enclosed aerated windrows for this site was the level of control on both compost quality and emissions and that the existing windrow turner could be utilised in the new scheme.

After a composting time of about 4 weeks indoors, the material is moved to the curing area by wheeled loader. To ensure maximum performance, the curing area is also equipped with aeration. After screening, the material is stored until sold.

By redesigning the site, the installation of the COMPOnent aeration system and rationalisation of material movement, the capacity of the site



Only one more Month to go!

was greatly increased, machine hours were reduced batch control made easier and compost quality improved.

Compost Systems Trade were employed to advise on system design, site layout and planning issues as well as supplying the aeration system.

Drawing on all areas of experience and technical expertise, Compost Systems were able to dramatically increase the efficiency and throughput of this site.



Andreas Posch Managing Director Posch GmbH

The facility was originally developed in the early 90s to compost 2,000 tonnes of sewage sludge per year. To expand our facility, we decided to install the COMPOnent aeration system in combination with the New Earth process. This gave us all the advantages of a windrow system with all the emissions and process control afforded by in vessel systems. We were also able to keep using our existing compost

turner.

It is never too late...

In Summer 2006, a window of 2 weeks provided enough time to install the COMPOnent forced aeration system into the existing sludge composting platform in Traismauer, Austria.

Each day the sewage works of Traismauer produce sewage sludge that has to be treated at the composting plant. There were no storage areas available so the aeration system had to be in place within 2 weeks.



So to cause as little disruption to the pad as possible and keep reinstatement cost to a minimum, 1m wide strips of tarmac were removed before digging a trench of 70 to 80cm width.

With only two men and an excavator, the aeration pipes were installed. The remaining space was filled with lean mix concrete, before the surface was repaved with Tarmac.



After a total construction time of only 2 weeks, the plant started operating again.



Platform finished after 2 weeks of construction

Resumee:

Maintaining aerobic conditions within the composting material is essential to ensure maximum degradation rates, material throughput and prevention of odours. Forced aeration can guarantee these conditions in the pile and also ensure high temperatures are achieved for sanitisation.

New Arrival.....

The new aeration duct COMPOair "S" is a complementary addition to the proven COMPOair duct. COMPOair "S" ducts are smaller and easier to install and more economic for shorter aeration runs.



COMPOair "S" Aeration Duct

With a total height of only 35cm the duct offers the ideal solution to retrofit existing composting installations. We also guarantee even air distribution from the first until the last airjet with variation of less than 15%. With a transport weight of just 190kg/m we can now fit 130 meters of duct on every truckload.

This makes the COMPOair "S" duct a perfect solution for composting plants with shorter runs, curing or storage areas where lower air exchange rates may be acceptable.

"....lower transport weight..."





COMPOtainer - the premounted blower station.

Plug and Play - power supply and connection to the aeration ducts - and the plant is operational. The complete pre-wired system including control panel and PLC only requires connection to a power supply.



The fastest, most convenient and most flexible way to start aerating the compost.

By connecting flexible hoses from the container outlets to the aeration ductwork compost aeration is ready to go!

Secure containment of the blower equipment protects these critical parts from physical damage. COMPOtainer is supplied with automatic ventilation so that the temperature and air quality within is maintained for prolonged blower life. Noise from the blowers is dramatically reduced.

COMPOtainer is available in a range of sizes depending upon space and equipment requirements. COMPOtainer can also be supplied with integrated office and or storage facilities.



COMPOtainer during installation

France Indoor Sludge Composting Plant

Following a successful tender submission, our partners Bioreva from Aix en Provence will be developing a sewage sludge compost plant for Chaumont. Planning permission has now been granted, and construction will start shortly. Compost Systems will deliver the technology, including COMPOnent aeration, computer control and documentation and six COMPObox digestion vessels.

The site will treat approx 8,000 tonnes of raw sewage sludge per year from local municipalities.

Six COMPOboxes, each 26 metres long and 6 metres wide will form the main composting process. All exhaust air will be cleaned by a biofilter.



In addition to delivering all main technology components, Compost Systems will also provide the process and site design.

The site is expected to be operational by late Summer 2007.

An extension of the site by a further 33% is already forecast.



Portugal

Setubal Lisbon After 9 years of operation, the compost plant Setubal close to Lisbon was completely refurbished.

The composting aeration system has now switched to COMPOair "S" aeration ducts. Approximately 2,000 metres of COMPOair ducts were required to refurbish the composting plant last June. The old grid type aeration platform created big problems in terms of uneven moisture levels in the material leading to inconsistent and poor product quality. The old aeration grid was removed and replaced with COMPOair aeration ducts. The compact dimensions of the COMPOair "S" units and the light transport weight were highly beneficial in this case.



Preparation of the strip foundation



The first aeration ducts COMPOair "S" were installed.

Iran

From our consulting project in IRAN, we report from the initial operational start.

Last June, Mr Luebke and Mr Wuerzl flew on a mission to IRAN to target a large agricultural producer with approx. 14,000 hectares of land.

Waste from a 2,000 cow dairy unit, green waste from plantations, large amounts of waste from their own sugar plant next door, and waste from their recently built citrus acid production plant will form the basic feed stocks for composting.

Process design and facility management, correct blending of feedstock, process management, documentation, the selection and use of equipment and the use of the final product were some of the topics to be covered.



Mr Wuerzl applied his experience and technical expertise for Compost turners as well as Shredders.



Priority 1: Sun Protection

As in all hot climates, enemy number 1 is dehydration. It is a tough job to keep the material at the correct moisture level for composting. A lot of attention was given to the design and installation of an underground water distribution.



Irrigation is the key to success



The water distribution network was installed underground

Starting Spring 2007

The TracTurn is a mobile Compost turner mounted to a tractor. Starting in Spring 2007, this model will be available on the market.



The development of the TracTurn started six years ago.

Target: A turning machine for almost all windrow types without the space wasting driving gap.

Result: A high performance machine for all types of windrows, in any width and up to 2.3m high.

With the integrated side stacking system the material is moved closer to the screening area with every turn.

For aerated windrows, the system is ideal, because the turning interval is not determined by the oxygen requirement, only by mixing requirements.

Several Prototypes were built. The originator, not unknown to the industry. Hubert Seiringer invented the market leading wind sifter for composting. "I am processing 7,000t/year of Biowaste on my small Composting Platform of 800m2. This is the highest throughput for its area of any platform that I know" Hubert Seiringer purports with confidence.



The turning machine is transported on a hooklift roll on roll off platform. The unit is powered and transported by a 250hp + Fendt tractor equipped with a tool carrier reverse drive setup.

The unit has a turning capacity of about 1,500m3 per hour.

The Seiringer machine is used on more than 10 platforms, some over 100km away.



With a working width of 3.7 metres, the TracTurn cuts a pile of any width.



With every turn the windrow is moved approx 4 metres to the side.



The conveyor belt gently forms the new windrow, perfectly mixed by rotor and conveyor system.

On most composting sites compost turners are only used for a few hours each week. With the track turn system the tractor can be used for a variety of other purposes therefore making ownership much more cost effective. With modern tractors travelling at speeds of 50km/h the track turn system gives contractors the flexibility to offer a number of services such as turning, transport and spreading of product using just one power unit.



Support

We are happy to announce that August Würzl has joined our team. He will be responsible for the machinery department.

He will manage production, service and sales of machinery equipment especially compost turning machines and accessories.

We look forward to a great development

You can contact Mr Wuerzl at: a.wuerzl@compost-systems.com Tel.: +43 727 727 500-0 Mobile: +43 664 482 4852

Machinery program:



Self propelled compost turners from 2 to 3 metre working width.



Tractor pulled compost turner from 2m to 4m working width ranging from 15hp to 300hp power requirement.



Used Equipment:



Compost turner SE370, John Deere engine 185hp, 4m working width, 2001, call for auote



Compost turner SF300, Ford engine 98hp, 3m working width, Fleece roller, Irrigation, "only 500h" Price:39,000 Euros



Tractor pulled compost turner, Sandberger St300. working width 3m, Price: 3,600 Euros

Testing equipment



CO2, O2, Temperature, NH4, NO3, NO2, SH4, accessories, for daily on site use



Contact: Bettina Berger +43 7277 27500-11

R&D **Results, Data and Facts**

Clear differences were shown in the recent comparison between non-

windrows with COMPOnent aeration.

oxygen levels at all times, while the non-aerated piles only secured s

The aerated batches showed perfect

ufficient oxygen supply for a short time

after a turning process resulting in high

Methane is 21 times more harmful to

climate than CO2 and should only be found at very low levels in a good

composting process. The comparison

showed clear differences. While the levels of methane in the non-aerated

piles were rising above 5%Vol CH4,

stayed between 0.01 and 0.1%Vol

Ch4

the levels in the aerated piles always

Eskímo Jokes:

methane and odour production

aerated windrows and aerated



Increased Throughput:

Aerated batches showed a 38% increase in the level of degradation over nonaerated batches over the same time. Sites with COMPOnent aeration have 38% higher capacity than similar non-aerated

In addition to the performance test. composting plant operators using COMPOnent were questioned on their experience with COMPOnent aeration. Higher capacity followed by reduced odour production, were the main effects. (see above Graph)

It is well known that composters using forced aeration will have a higher water requirement as a result of increased biological activity and air exchange. In areas of high rain fall and where transport weight of compost is an issue the use of positive aeration can be of a significant benefit.



Happenings Tradeshows:

Entsorga COLOGNE: 24.Okt. - 27.Okt

Pollutec Lyon: 28.Nov - 1.Dez.06

Seminars:

Biowaste-Compost-Soil 24.Okt - 26.Okt.06 St Pölten:

CMC: Municipal and Agri Composting (Lübke Classes) Austria: 8.Mai - 11.Mai.07 Germany: 19.Juni - 22.Juni.07

WKO Showcase: 17/18Okt.06 Prag: Barcelona/Madrid/Lissabon: 21/22/23 Nov.06

Visit our Webpage:



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