

A turning point in efficiency

By Jacqueline Ong

OF the stands *Inside Waste* visited at IFAT, the Eggersmann Group had one of the more impressive spaces. Visitors were surrounded by a sea of blue machines across 750m² (bigger than most houses in inner Sydney) - and that was just Eggersmann's internal exhibition space. It certainly provided the ideal spot to premier the company's BACKHUS CON 60.

Eggersmann offers solutions for mechanical and biological waste processing as well as mobile and stationary product innovations in shredding, screening, separating, turning and bag opening. Its BACKHUS range, which is distributed through GCM Enviro in Australia and comprises compost, windrow, and lane turners, has had a long history spanning some 25 years.

Last year, the company expanded its product portfolio, acquiring the biological drying technology of CONVAERO GmbH. The company then developed a biological drying and composting series - the BACKHUS CON - which combines the BACKHUS turning technology with the CONVAERO membrane covered system.

"We saw synergies between the two systems and the idea that drove this was to be able to keep material outdoors and covered up but without having to build a structure for the material. So, it was about being able to keep the materials pressurised and covered to

prevent odour issues without incurring the cost of having a full building and exhaust treatment," CONVAERO product manager Jan Gressmann said.

The value is for operators that may have a smaller budget, regional centres, and emerging countries.

"While the trend is moving away from doing any waste treatment in the open, in emerging countries for instance, they don't have the money to have fully enclosed systems or high-tech systems. They also may not have the capacity of people maintaining and running that. The idea was to develop something in between and with the membrane, you get the cover and you get the air treatment," Gressmann said, adding that the odour load is comparable to a plant with a biofilter.

The CON series is suitable for MSW, organic waste, sludges and very wet waste. It is available in three sizes, the 60 (which made its debut at IFAT) for lane widths of 6m, the 75 for lane widths of 7.5m and the 100, for lane widths of 10m. According to Eggersmann, the CON machines offer 25% more capacity than a windrow turner with the same site footprint and height, and input material with high moisture content of up to 70% can be treated with these turners.

How it works

The equipment, apart from the turner, is placed underground to protect against weather impacts and potential accidents. And in terms of

powering the system, only one power point is required.

The membrane covers the length of the aeration floor while material between the two walls of the machine is being turned (see Figure 1). The tracks remain clean with the water accumulating on the membrane simply dripping or flowing down the cover into water lock pits underground. These pits represent one of three separate drainage systems on-site. The other two collect press, surface and roof water from manoeuvring areas in front of the lanes, as well as from the membrane cover. Press water can be recycled as sprinkler water during the turning of the materials while surface water from the driveways is directed to a retention pond for optional further treatment. Meanwhile, the roof water from the membrane covers drains into the retention pond and is subsequently discharged.

"There's less stormwater run-off with the system so you'll have no leachate problems. And with the moisture inside, we've put piping on the floor that air flows through and sucks out the water," Gressmann explained.

"What you also have with a membrane cover system is full process control. Because independent of whether it's raining or it's very dry, or it's very cold, you always have the right conditions inside - it's warm enough, it's moist enough... And if it's not, we can add moisture. If it's raining, you want to prevent the rain from entering and that's what you can do with the membrane

cover and aeration - keep the right process conditions inside for a relatively low price compared to a building."

Key benefits

Gressmann said the CON works five times faster than a front wheel loader. Importantly, working with a loader means your material is out in the open and uncovered in that duration - not so with the CON.

"With a front wheel loader, first you have to pull off the lane and every time you have to turn the material, the loader has to go in, pick it up and then fill it up on the other one, so there's a lot of empty driving around the area, and empty driving is a waste of money. With this machine of course, you need to pull it up once with a wheel loader, but then over the period, while the BACKHUS turner is operating, you aerate it. So, when the turner is going one way, it's taking the material and throwing it backwards thereby you get the air in, you have the moisture and you then create the temperature - the three most important ingredients in the process. You do it all in one process with no wasted time," he said.

With a lane measuring 100m in length, 10m in width and 2.9m in height, the CON offers a volume of up to 2700m³ and capacity of up to 1500 ton at a turning time of approximately one hour. The system is also modular, allowing for site expansions without interrupting the process. **iw**



The BACKHUS CON 60 made its debut at IFAT 2018.

BACKHUS CON 60: overall space efficiency up to 1.4m³/m² and turning efficiency up to 1000m³/h

BACKHUS CON 75: overall space efficiency up to 1.6m³/m² and turning efficiency up to 1500m³/h

BACKHUS CON 100: overall space efficiency up to 1.7m³/m² and turning efficiency up to 2500m³/h



Figure 1: Basic layout.