



Cambridgeshire  
& Peterborough  
Campaign to Protect Rural England

**PLANNING APPEAL: APP/E0535/W/19/3225123**

**Cambridgeshire County Council Planning Application No.: S/3372/17/CW**

**Waste Recovery Facility Levitt's Field, Waterbeach Waste Management Park. Ely Road, Waterbeach, Cambridge CB25 9PQ.**

**Statement on behalf of: CPRE - Cambridgeshire & Peterborough**

**By:** Alan James BSc.Tech. PhD. MBCS CITP MIMMM CEnv.  
Branch Chairman

**Date:** 5<sup>th</sup> November 2019

**Text of Statement:**

My name is Alan James, I am the Chairman of the Cambridgeshire & Peterborough branch of CPRE. I am not a planner. I hold a doctorate in Materials Science and am a Management Systems professional. Amongst other industries, I have had in-depth experience of the waste management industry. Several years ago, one of my businesses re-developed and supported the waste collection and waste management systems of a major, UK-based and international waste management company.

CPRE fully support and continue to support all of the reasons given by Cambridgeshire County Council for its refusal of this application.

In its letters to the Council and more recently to the Inspector, CPRE raised six major objections to this application. I would like to expand on some of our reasoning.

**1. Effect on Landscape**

We previously pointed out that this proposal would have significant and adverse visual impact on the local character and surrounding countryside due to its prominence, large scale and industrial appearance. The 80 metre high chimney would be clearly visible from public viewpoints on higher ground and it would be visible for miles across the surrounding low-level and open Fenland. It would have a serious impact on the Fen Edge District Landscape Character Area.

I would like you to consider carefully just how damaging this giant industrial structure will be in that landscape. Not just from the few chosen locations of the

landscape professionals but through the eyes of ordinary people who live and work here and the tourists who come to visit our fine cities of Ely and Cambridge and to experience the Fens. I would also like you to consider the effect for those who look into this landscape from the higher ground to the south, east and west.

I live in Haddenham on the south side of the Isle of Ely. From my house looking south on a clear day I can see across the Fen from the Isle to the chalk hills which border Newmarket in the east, round to the Gog Magog Hills, to Madingley ridge and Bourne across to St Neots, the river valley dips and then there is the ridge running south from Huntingdon past Graveley. If the weather is very clear and the light is right, I can see clearly the TV mast at Sandy in Bedfordshire.

So just imagine anyone located on any of those vantage points I have mentioned, apart from the TV tower of course, looking into this Fen bowl. Instead of seeing a gentle Fen landscape with its towns and villages on the higher ground, their view will be dominated by this massive industrial building and its fuming 80 metre high chimney depositing its toxic, heavy-metal and organic pollutants across some of the most productive food-growing land in this country.

Consider also the effect this will have on the many overseas visitors to Cambridge, especially those from the United States who have come to pay their respects to their countrymen who died fighting for their freedom and ours, and are now interred, in perpetuity, at Madingley Cemetery. When those visitors look north east to see the famed view of Ely Cathedral, they will have their eyes distracted by this intrusive industrial structure.

Many people have the concept that because the Fens are flat, the landscape is boring or monotonous and therefore can be sacrificed. It is not. It is in fact a very special, and delicate, place. In considering how to convey this attribute, I was reminded that back in 2008, there was another public inquiry about a proposed development a few miles further north along the A10 between Stretham and Wilburton. I remembered how the Inspector who considered that application had come to appreciate the Fen landscape. In his report finding against that applicant he wrote these words:

*“North of the Great Ouse bridge on the A10, flat, open farmland becomes more prevalent particularly to the west of the County road, although there are some roadside services on the eastern side. However views in a north-westerly direction towards Wilburton portray an open landscape of arable land, ditches, drove roads and further to the north, small groups or belts of trees which increase towards the A1123 and ridge line north of that road. Whilst it is not of topographical interest, I*

*would not characterise this landscape as 'monotonous'. It has a slightly mystical character that can change with weather conditions. The belts of trees as the land rises slightly towards the A1123 and the higher trees in linear order approaching the ridge add an almost Arcadian hint to the landscape character."*  
(Appeal Ref: APP/V0510/A/06/2014221, page 174)

In the local landscape, there are few industrial buildings. Indeed, one of the largest is the existing building on the Waste Management Park. To consider complementing that with a building significantly more massive in every dimension than the other large buildings in our landscape, such as village churches and Ely Cathedral itself, demonstrates incredible insensitivity to any form of environmental, social, artistic or cultural value associated with the English countryside and our unique Fen landscape.

The establishment of first the National Trust and then CPRE were amongst the outcomes of the work of John Ruskin, William Morris and Octavia Hill who wanted to restrict the urban sprawl that was developing around London at the end of the 19th century. It is Octavia Hill, a foremost citizen of Wisbech, who is remembered as being the first user of the term 'Green Belt' in a letter to Ruskin in 1875. With its long history of campaigning in mind, CPRE is very concerned by any threat to Green Belts.

The Cambridge Green Belt is reputed to be the first to be established outside of London following the Duncan Sandys' circular. We see it being eaten away by a development here, another there. Cambridge Green Belt is also one of the smallest in the country. It is exceptionally narrow in its width and so any adverse impact makes it highly vulnerable.

The proposed incinerator is right at the edge of the Cambridge Green Belt and CPRE considers that the scale of the proposed development will have a negative impact directly upon the Green Belt and reduce the planning authority's effectiveness in maintaining the countryside around Cambridge, Histon, Milton and other settlements within the Cambridge Green Belt. Soon it will become very difficult to even call it a Green Belt let alone recognise it as one. It will then be too late because the character of the County city and the countryside surrounding it, will have been forever changed.

## **2. Light Pollution**

As stated in our letter of objection, CPRE are concerned that the light emitting from the buildings and car parks will add to the light pollution in this primarily rural

landscape. This will add to the urbanisation of the landscape within the district, within this area of East Cambridgeshire and on the edge of the Cambridge Green Belt.

Light pollution prevents us all from seeing the wonders of the night sky. It is also becoming apparent that it has a significant negative effect on wildlife whose body clocks and habits are attuned to the natural rhythms of day and night.

We are very concerned that much of the good work by the County Council recently in replacing all its streetlights with much more directional and less polluting technology will be undone.

This will have most effect closest to the site leading to a very negative impact on Denny Abbey and the surrounding and increasing residential areas of Waterbeach. However, it will also create a major source of light pollution in the wider night time landscape.

### **3. Effect on Denny Abbey**

The proposed building with its 80 metre chimney is so massive that it will cause significant harm to Denny Abbey and to the other listed buildings of the Denny Abbey complex and the Farmland Museum.

As previously stated, we concur with English Heritage's view, given in its objection letter of 11 January 2018, that "the historic setting of Denny Abbey is that of an historic medieval institution deliberately sited at the Fen edge" and "originally sited on a small raised island until the Fens were drained".

We agree with English Heritage who express the importance of the original setting chosen by the Benedictines in 1159 on the slightly raised edge of the Fen.

Furthermore, the Farmland Museum which manages the site provides an important educational function in showing people of all ages just how farming has developed over the past century and the important role it still plays in our society, especially in the Fens.

We urge that the fragile setting of Denny Abbey must be protected.

### **4. Climate Emergency**

Parliament declared a Climate Emergency in the UK and the Government has set a target for the UK to be carbon neutral by 2050. Many say this is too late. Six Select

Committees of Parliament are now in the process of setting up a citizen's assembly to be known as Climate Assembly UK to examine what actions can be taken to reduce carbon emissions. The recent moratorium on fracking will assist because recent research\* has shown that methane emissions from fracking are a significant contributor to global greenhouse gas emissions.

(\*Howarth, R. W.: Ideas and perspectives: is shale gas a major driver of recent increase in global atmospheric methane?, Biogeosciences, 16, 3033-3046, <https://doi.org/10.5194/bg-16-3033-2019>, 2019.)

Local councils including the City Council have declared Climate Emergencies. It follows therefore that all reasonable steps should be taken to avoid adding to greenhouse gas emissions. CPRE has read the report titled "COMMENTS ON THE APPELLANT'S THIRD CARBON ASSESSMENT AND THE PROOFS OF EVIDENCE OF STEPHEN OTHEN AND DAVID ADAMS WITH RESPECT TO CLIMATE CHANGE" written by One Solutions and submitted to this Inquiry by the local Campaign Group, Cambridge Without Incineration, CBWIN.

We are very concerned to discover that the planned incinerator will apparently *"emit between 11,393 and 28,336 tonnes of CO2 equivalent per year more than would arise from sending the same waste to landfill"*.

Our primary concern is that this additional greenhouse gas will exacerbate the threats from climate change, the greatest of which in this County is the loss of the Fens to sea-level rise.

This situation will not be helped by all the additional emissions from transporting waste from other areas of the country. In this respect, we note the Appellant's unclear Clarification Letter to County Council dated April 2018 which stated:

*"70% of the burning capacity of the plant will be given to a 'local catchment area' and <30% capacity retained for private contract imports that will be allowed to come from geographically anywhere.*

*The 'local catchment area' comprises Cambridgeshire and Peterborough, and their adjoining counties of Milton Keynes. Adjoining Counties are Hertfordshire, Suffolk, Essex, Norfolk, Luton, Bedford, Central Bedfordshire, Northamptonshire, Rutland, and Lincolnshire. 11 counties in total.*

*Waste being processed through any waste transfer station within the defined catchment will be regarded as arising from within the catchment area."*

We note that *"private contract imports"* could include other areas of the country where the applicant is the waste services supplier, one of which is the Isle of Wight.

CPRE would like to point out that of the c. 40% of food that is grown in this country, c. 60% of that is grown in the Fens of Cambridgeshire, Lincolnshire and Norfolk. Yet, due to climate change, there is now a high risk that by the end of this century the Fens will once again be permanently flooded because the billions of pounds needed to protect them are not forthcoming.

Based upon IPCC 2014, the Environment Agency is working to protect against a 1 metre sea level rise in the Wash by 2080. It is currently carrying out bank-raising along the South Bank of the River Great Ouse to protect against a 1 in 80 probability event at these levels. More recent estimates indicate the possibility of a 3 metre or even a 4.7 metre sea level rise by the end of the century and in recent years there have been several 1 in 1,000 probability events around the globe. There is every indication that the risk of flooding in vulnerable areas is going to increase.

CPRE believes that because of the increasing flood risk to the best food growing land in the UK, the Fens, everything possible must be done to reduce that risk.

The surest way of doing this is to limit or, even better, reduce greenhouse gas emissions. This proposal appears to have a significantly opposite effect.

##### **5. Cambridgeshire and Peterborough Local Minerals & Waste Plan.**

The Further Draft Cambridgeshire and Peterborough Minerals and Waste Plan dated March 2019 underwent consultation from March to May 2019. It is anticipated that the Proposed Submission Local Plan will be published during November or December 2019. CPRE believes that this application must be considered in the context of the emerging Cambridgeshire and Peterborough Minerals and Waste Plan.

It is significant that in the introductory notes to the emerging Minerals and Waste Local Plan on the County Council web site, it is stated *"No allocations are being proposed for waste management development over the plan period as the Plan area has, on the whole, sufficient capacity to manage the forecast waste arising. Therefore it is proposed that any new waste management development will be guided through a criteria based policy."*

Furthermore, in the March Draft we can find no reference to a need for a major waste incineration facility.

Core Policy 1 states:

*"Proposals should, to a degree proportionate with the scale and nature of the scheme, set out how this will be achieved, such as:*

*a. demonstrating how the location, design, site operation and transportation related to the development will help to reduce greenhouse gas emissions (including through the adoption of emission reduction measures based on the principles of the energy hierarchy); and take into account any significant impacts on human health and air quality;"*

This application does not appear to be consistent at all with that Policy statement.

It could be argued that the application is consistent with the next paragraph:

*"b. where relevant, setting out how the proposal will make use of renewable energy including opportunities for generating energy from waste for use beyond the boundaries of the site itself, and the use of decentralised and renewable or low carbon energy;"*

Except that the report submitted by CBWIN referred to above demonstrates clearly that this proposal cannot be considered in any way to be providing either renewable or low carbon energy.

Appendix 2: The Location and Design of Waste Management Facilities states very clearly the issues likely to arise from Energy from Waste facilities.

*"3.33. Air quality issues may arise from on and off site dust, this may come from different sources for example, traffic, and from the on site operations of the facility. Emissions from most Energy from Waste facilities will be monitored and regulated by the Environment Agency through their environmental permitting regime. Particulate concentrations are particularly high in parts of Cambridgeshire and Peterborough, and the contribution of any waste management could be relevant to attainment of local air quality objectives."*

*"4.20. Common Issues: Traffic / Access, Air / Dust, Odour, Noise, Litter, Pests / Vermin /Birds, Water Resources, Landscape and Visual Impact."*

These are all issues which the community and CPRE are concerned about and it is encouraging that the Council has recognised these issues in setting out its standards for waste management facilities. We fully support the Council in not wanting to lower its standards for this applicant.

Core Policy 3 states:

*"The Waste Planning Authorities will seek to achieve net self-sufficiency in relation to the management of wastes arising from within the plan area, plus additional*

*provision until 2026 in order to accommodate needs arising from London (specifically regarding non-apportioned household and commercial & industrial waste)."*

We have already shown that the applicant intends to accept waste for incineration from many authorities in order to make its project financially viable. This will clearly put the achievement of Policy 3 at risk and it is not consistent with government guidance which is intended to reduce waste movements and not encourage waste swapping over long distances in order to achieve 'net' self-sufficiency.

#### **6. Modern Developments of Waste Processing Technology**

In previous correspondence we highlighted that new processes for sorting and re-processing waste or replacing/reusing the materials which would be incinerated are continually being successfully researched and developed.

We highlighted a process which had recently been developed that will make black plastic food-packaging waste identifiable and hence increasingly recyclable using existing waste sorting machinery. (Materials World - April 2019).

We are now aware of further processes which are increasing the recyclability and re-use of plastic wastes. These include:

- Chemical markers which improve packaging waste sorting. Chemical markers have been proven to quickly and accurately segregate food-grade plastics for recycling. (Materials World - August 2019 copy attached)
- The Trifol process which turns plastic waste into waxes. Reclaimed polyolefin soft plastics are being turned into waxes as a substitute for materials that would otherwise be crude oil-derived. (Materials World - September 2019 copy attached)
- Use of mixed plastic waste for the manufacture of railway sleepers. Feasibility demonstrated by TRL Limited (Report attached). Manufacturing and use now established in the UK. (Articles attached).

As stated in our letter, CPRE regard it as unsustainable to burn materials that are already, or are in the future likely to become, recyclable. Temporary storage in managed landfill until technological development makes recycling feasible and affordable is a more sustainable approach.



Cambridge, Anglia Ruskin and Cranfield universities are heavily involved in materials research and sustainability research. Local communities, including Waterbeach itself, are populated with highly able, highly motivated and qualified, research and development people.

We would challenge this applicant not to use out of date technology to waste valuable materials by burning but rather to expand their existing education facilities into a Waste Management Science Park where new technologies and techniques can be researched, developed, piloted and scaled up to production capacities, all on the one site.

This could be a world class facility that everyone would applaud Amey for, rather than being the modern equivalent of a coal-burning tramp ship of the Fens.

### **Conclusion**

CPRE continues to support all of the reasons given by Cambridgeshire County Council for its refusal of this application.

Thank you for the opportunity to address the Inquiry today.

### **List of Attachments:**

Extract - Materials World - April 2019

Extract - Materials World - August 2019

Extract -Materials World - September 2019

Sicut Composite Sleepers - Web Pages - Sicut Enterprises Ltd 2019

Network Rail to replace wooden sleepers with recycled plastic - Daily Telegraph - May 2009

The Feasibility of Recycled Plastic Railway Sleepers - TRL Ltd - April 2006

# Black plastic made recyclable

An Irish packaging company is launching new black plastic food trays that can be identified in recycling sorting systems. **Shardell Joseph** reports.

New technological advances in black plastic food trays are predicted to divert thousands of tonnes of black plastic from landfill each year. Developed by Irish company Quinns Packaging, the new trays are tackling the issue of black plastics' invisibility to detection by changing the pigment.

Popular among food manufacturers, standard black polyethylene terephthalate (PET) trays use a carbon black colour additive. Material recovery facilities use near infrared (NIR) optical sorting equipment to identify and sort plastic waste streams, but the carbon black trays absorb the infrared beams, making them invisible. As the sorting system cannot detect the black plastic, it cannot be automatically sent for recycling.

'Carbon black pigment hinders this polymer detection by absorbing the light. Nothing is reflected to the detectors so the equipment effectively doesn't see anything. The trays are essentially invisible,' said Quinn Packaging New Product Development Manager, Thomas McCaffrey.

'In the case of the Detecta range, there is no carbon black pigment included. Instead the black colour is achieved by blending primary and secondary colour pigments together to achieve black. By using this solution the NIR light both passes through and reflects off the tray surface resulting in the packaging being fully visible to sorting systems.'

Each year in the UK, 3.5 million tonnes of plastic goes to landfill because black and other dark colours of packaging cannot be detected by recycling sorters. One million tonnes of that is plastic packaging – 5% of all packaging made annually.

Ecosurety, a packaging compliance scheme, suggested plastics as a material stream faces huge pressure to reach the 51% recycling rate – describing the plastics performance as a 'cause for concern.'

Focused on improving the market with an easily recyclable, competitively priced black PET tray, McCaffrey, said, 'In the past 12 months we have seen a growing desire within the food sector to move away from black coloured packaging. For Quinn Packaging, this was shortsighted.

'If we are serious about moving towards a true circular economy, where food trays are recycled back into food trays, then the ultimate packaging colour to achieve this is black. The new range overcomes the issue of identifying and sorting black PET trays for

recycling and will hopefully help the industry to move towards a true circular economy.'

Operating the packaging and compliance scheme for Ireland under licence from the Irish government, Repak has endorsed the Quinn product by declaring it as an important step in helping meet new EU targets on plastic waste.

Repak Packaging Technology Executive, Brian Walsh, said the EU *Action Plan for a Circular Economy* has a recycling target of 75% for packaging waste by 2030. 'To allow us to achieve this we need a collaborative effort from all stakeholders, identify where problems exist and then work together to bring forward solutions,' he said.

'The new Detecta by Quinn is a perfect example of this. Quinn Packaging has worked closely with both the retail and the waste recycling sector to develop a new black PET tray that can be recycled. This is a great illustration of packaging design for recycling.'

Below: The new Detecta black PET food tray.





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## CHEMICAL MARKERS IMPROVE PACKAGING WASTE SORTING

**Ceri Jones**

Materials World magazine, 6 Aug 2019







*Credit: Vitaliy Kyrychuk/Shutterstock*

**Chemical markers have been proven to quickly and accurately segregate food-grade plastics for recycling. Ceri Jones finds out more.**

A polymer consortium has successfully demonstrated its European Commission-funded technology, Polymark, to improve recycling and reclaim more food-safe waste plastics.

‘A staggering 32% of plastic packaging escapes collection systems, generating significant economic costs. After a short first-use cycle, 95% of plastic packaging material value, or US\$80–120bn annually, is lost to the economy,’ according to 2016 Ellen MacArthur Foundation report, *The new plastics economy, rethinking the future of plastics*.

This mountain of material waste is exacerbated by an EU regulation (EC/282/2008), which states that recycled packaging for food and drink products can only be manufactured from materials originally certified as food safe. Current processes do not help stakeholders in the materials value chain, as it is very difficult and time consuming to reclaim specific plastics from bales of mixed recycling. Therefore, an abundance of useful material resource is lost, and manufacturers use more virgin plastics, so are at the mercy of changeable prices of oil-based raw materials and carbon fees.

The Polymark chemical marker project gained attention in the MacArthur report and has progressed in the three years since. The programme proposes to impregnate polyethylene terephthalate (PET) food-grade plastics with a chemical that can be detected during waste sorting, to help segregate and salvage greater amounts of food contact materials. While PET is already widely recyclable, using markers would reduce the levels of virgin material used in food and drink products. Having run initial tests, the company claims this process has a 98% efficiency rate.

**Bottle buy-in**

While a seemingly simple system, Polymark would require cross-industry coordination to work effectively. The group has developed a two-part technology where the manufacturer uses a machine to coat or physically imprint the packaging or label, depending on the product type. Then a recycling facility uses a camera detection system to identify the marker at the end of its first life.

A range of chemicals were assessed to find a marker that met the criteria of being food safe, visible under UV even after being filled, distributed and bashed about, stable under heat and light, and water soluble. Of the 130 candidates, two top performers were found and one gained preference, 4,4'-bis(2benzoxazolyl)stilbene, called

stilbene. This proved ideal for both compounding and coating techniques, and is detectable with inexpensive UV and visible (VIS) equipment.

In the second stage, the detection machine beams high-energy LED lights onto plastic packaging which excites the marker, causing it to emit fluorescent signals. UV light, VIS, or near-infrared can be used. A series of cameras with spatial resolution of 10mm ran up to 2,000 scans per second to identify marked PET bottles on a conveyor belt.

#### Recognised as safe

To test the equipment in a real-world environment, Polymark made a prototype sorting system to operate at practical speeds. Trials were run on fully and partially coated PET bottles, sorting on a belt at 3m/s, a working width of 1m and a throughput of two tonnes per hour. It averaged a 98% efficiency for fully coated bottles and a low of 94% when they were only partly coated. Overall, the system had just 5% false rejects.

The stilbene marker coating has received gained food-contact certification, is thermally stable, and does not affect the packaging appearance or product flavour. Importantly, it can be removed in the normal washing process, so would not accumulate or interfere with further processing. The process is now market-ready.

Polymark was contacted for comment on how the technology would be rolled out, but was unable to respond in time. Please check the *Materials World* website for updates on this story.

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## TRIFOL TURNS PLASTIC WASTE INTO WAXES

**Anthony Caggiano**

Materials World magazine, 27 Sep 2019

**Plastics destined for the waste heap are being turned into new products that can be used as a drop-in material.**

Reclaimed polyolefin soft plastics are being turned into waxes as a substitute for materials that would otherwise be crude oil-derived.

Material processing company, Trifol, Portlaoise, Ireland, uses soft film products, for example plastic bags, wrapping and packaging to process into the waxes. 'Currently the majority of waste plastic is sent to landfill or incinerated. Polyolefin soft plastics, the company's targeted waste plastics stream, are the most notoriously difficult plastics to recycle,' Trifol said.

### Material recovery

According to Plastics Europe 2018, of the 27 million tonnes (Mt) of consumer waste plastic collected in the EU in 2016, only 31% was recycled, while 42% was incinerated and 27% went to landfill, resulting in 18.7Mt of plastic waste released into the environment in one year alone. Trifol is able to use some of that product that may go to landfill. For every tonne of material produced, Trifol takes 1.5 tonnes (t) of plastic waste from landfill.

Trifol Chief Technologist, Fergal Coleman, told *Materials World* the films are recovered by a waste management operator in a materials recovery facility where they are picked, shredded and washed.

The company processes film that comes in as a flake with less than 5% moisture content. 'Typically, the plastic in this stream is more than 95% low density polyethylene. Whilst rigid polyolefin plastics, for example plastic milk bottles, are also suitable for conversion to waxes, we do not target this stream as it has higher value,' Coleman said.

### Pyrolysis

A patented pyrolysis process is used to treat the polyolefins. 'When heated to more than 400°C, the molecular bonds in polyolefin plastics begin to break, releasing shorter chain molecules which evaporate from the pyrolysis reactor as they are formed,' Coleman said. 'Using distillation, these products are then separated downstream according to boiling point, into a number of products including naphtha, a gasoline-like fraction, gas oil, similar to diesel and kerosene, and wax. This wax is a drop-in replacement for crude oil-derived slack wax in several applications. Use as a feedstock for synthetic lubricant production is one of the biggest potential applications, by volume. Conversion to a synthetic lubricant base oil involves a catalytic dewaxing process and would be carried out in partnership with a lubricants partner.'

The material is sold to wax blenders where it can be formulated into various slack wax products or refined for higher applications. Trifol stated that the new development is chemically identical to virgin wax and can be used in any application, from printer ink to waxed fruit.



The company claims their process has zero emissions and contributes about a 30% reduction in greenhouse gases.

### Commercialisation

The company has been able to scale up their operations from the laboratory to a commercial factory. At the launch of the new factory in July 2019, Ireland Minister for Justice and Equality, Charlie Flanagan, said plastic waste was a topical and emotive issue. Flanagan said he was delighted an Irish company was taking a lead in reclaiming such materials and turning them into a commercial opportunity.

‘The company has chosen Portlaoise as a central location to convert plastic waste into waxes. Most significantly Portlaoise will be a reference site to showcase this Irish technology, with a view to exporting it,’ he said.

The company’s production capacity is currently at 10t per day and it hopes to scale this to 30t per day in 2020. They aim to be operating 24/7 by the end of this year. The company has ambitions to open several sites across Ireland and further into Europe and the USA.

Four patents for the technology were published by the European Patent Office in December 2018, while others were filed in the USA. The team has worked with Queens University Belfast since the company’s inception in 2014. At the university, a pilot plant was built and then operated through to 2016 to develop a proof of concept. The University of Limerick has since become involved for product testing.

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## Railway Sleepers

Sicut Composite Sleepers are manufactured from a unique blend of recycled plastics, reinforced with glass fibre. They deliver outstanding performance over a very long service life: maintenance free. The technology, originally developed in the US from the early 1990's, has been progressively improved and perfected at commercial scale. Sicut's technologies have been extensively tested and proven, in both the laboratory and track, in the US and Europe, enduring some of the most demanding testing ever undertaken on a railway sleeper, of any material.

Sicut Composite Sleepers have been installed in heavy haul, passenger mainline, metro and light rail applications and under extremely wide ranging environmental conditions, from the desert in the Middle East, to high humidity areas in SE Asia, to the very coldest areas of North America, as well as across Europe. Extensive independent test data and a plethora of reference projects are available to demonstrate performance. Sicut Composite Sleepers also benefit from a growing number of type approvals and certifications.

Sicut Composite Sleepers are also easy to handle, using existing equipment and training, and can be installed by small track teams in short periods; helping to keep the rail traffic moving. Equally they can be installed using high output machinery capable of installing timber sleepers. Sicut Composite Sleepers can be fitted with a wide range of baseplate and clipping systems designed for timber sleepers, included but not limited to, K type, SKL, Nabla, e-clip and fast clip.

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Modern Slavery Statement (</wp-content/uploads/2019/08/Sicut-Anti-Slavery-and-Human-Trafficking-Policy.pdf>)

## Network Rail to replace wooden sleepers with recycled plastic

Network Rail is to start replacing traditional wooden sleepers with blocks made from robust recycled plastic following successful track trials.

7:41PM BST 04 May 2009

The track operators have already identified three freight lines and work is scheduled to start in August on the switchover.

Network Rail currently replaces 200,000 timber sleepers a year along with environmentally inefficient concrete versions.

The track programme will see the new eco-rated dark grey sleepers, made from a revolutionary recycled composite, being fitted to the track bed to hold the rails.

Halifax-based manufacturing company i-plas developed the futuristic material, which will help reduce maintenance delays, assist sustainability targets and increase environmental benefits.

Following trials conducted on a stretch of private track by researchers at the University of Manchester, the roll-out of the recycled sleeper will extend across the entire rail network.

The new-age track supports are made from 100 per cent recycled heavy duty plastic and have a minimum 30-year life cycle. They are vandal-proof and flame-retardant - and they do not twist or warp, become porous or degrade.

The sleepers are made using a unique blend of waste that otherwise would have been heading for landfill and its developers claim a minimum of 80,000 tonnes of plastic a year will be diverted from rubbish tips to be used on the track upgrade programme. They are also 100% recyclable at the end of their working life.

The new eco-sleepers will reinforce the green credentials of travelling by rail, which is already more environmentally friendly than journeys by car or plane.

A normal suburban train uses, per passenger, about 45-130 grams of CO<sub>2</sub> per kilometre, compared to about 330-460 grams CO<sub>2</sub> per kilometre for air travel and about 145-260 grams CO<sub>2</sub> per kilometre for cars.

A spokesman for Network Rail said the company is aiming to hit a target of using 23 per cent recycled material by 2012.

Every tonne of plastic material diverted away from landfill and into recycling reduces greenhouse gas emissions by 1.66 tonnes. In comparison, producing one tonne of concrete generates almost a tonne of CO2 emissions.

Howard Waghorn, Managing Director of i-plas, said: "Our recycled building material is so adaptable and can be used to replace preformed concrete products, steel or timber for specific applications; in this instance it will replace wooden railway sleepers. "This is a huge British innovation and one that we are truly proud of. Network Rail is certainly visionary to grasp this new concept and drive it forward."

Fellow director Keith Hutchison said work had already started on developing the i-plas material to be used as kerbstones to replace the current concrete versions.

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