



PRESS PACK

March 2012

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1. THE KNOWASTE STORY

About Knowaste

Since the 1990's Knowaste has been the leading developer of recycling technologies for disposable nappies, incontinence pads and feminine hygiene products (collectively known as absorbent hygiene products - AHPs).

The company is a private business, incorporated in the USA. Knowaste Limited, a wholly owned subsidiary of Knowaste LLC, has recently opened the UK's first recycling facility for absorbent hygiene wastes and has exclusive rights and proprietary know-how for the technology in the UK and Northern Ireland.

The plant is based in West Bromwich, Midlands with the creation of 20 jobs and recycles 36,000 tonnes of AHP to reclaim valuable plastics and fibres which can replace virgin materials in new applications.

Knowaste plan to roll-out 4 -5 more plants over the next 3 -4 years across the UK siting plants in locations to match population and demand from commercial and domestic sectors; intentions are to locate in Scotland, London, the North and the Southwest/Wales.

The need

It is estimated that over 1¹million tonnes of absorbent hygiene waste is generated in the UK every year, in and away from home.

Typically the most intractable of waste products, until Knowaste, AHPs have been sent directly to landfill or incineration for disposal.

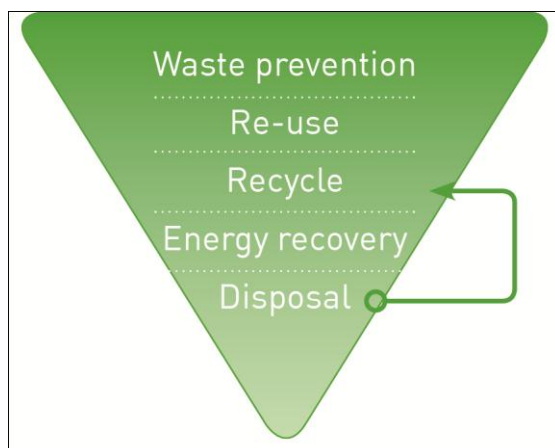
However, with increasing landfill taxes, high recycling targets and sustainability goals coupled with a growing and aging population, an alternative solution is clearly needed.

AHP waste occurs in and away from home. Waste generated by homes with children or where an ill or elderly resident is being cared for, amounts to 5% of the municipal kerbside waste on average, but can be as much as 10²%. For some families, disposable nappies can represent the bulk of their residual bin. In addition, significant tonnages of waste occurs in hospitals, care homes, child nurseries and washrooms and waste contractors serving this market, are increasingly seeking more sustainable solutions to landfill for this waste.

¹ Estimate based on industry stats and report from Resource Futures 2011 for Knowaste indicating c. 800k tonnes of AHP waste in the domestic sector

² Report Resource Futures for Knowaste 2011

Governments across the UK see waste as a resource and landfill as the disposal method of last resort and in line with the waste hierarchy Knowaste offers an opportunity to address an erstwhile intractable waste stream.



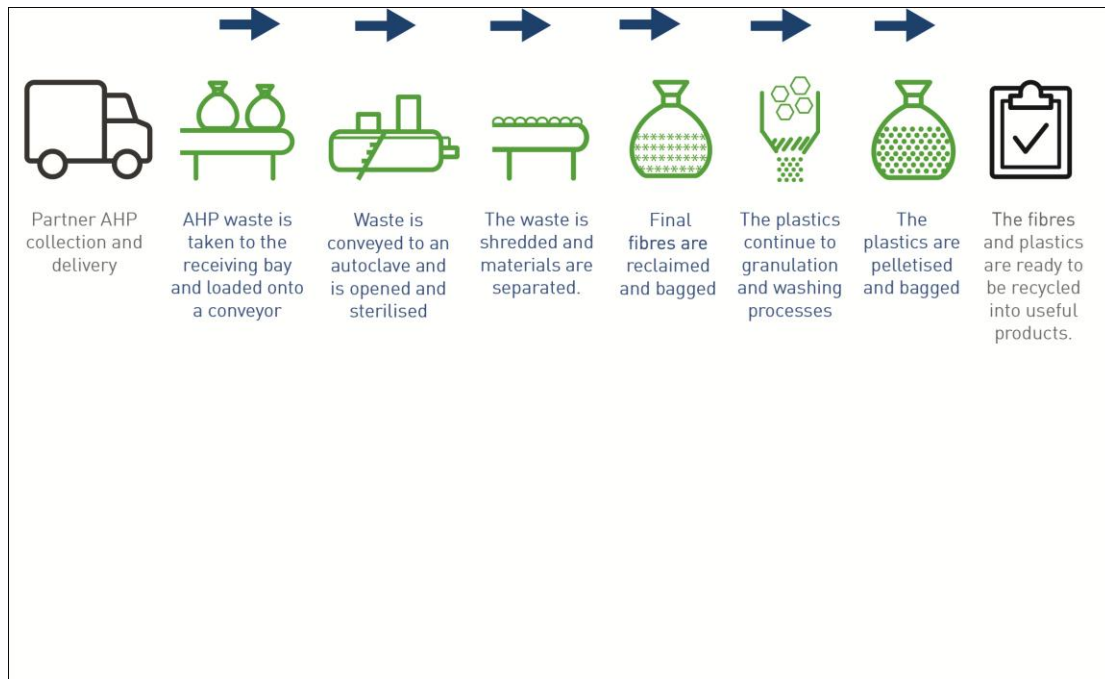
The solution

The Knowaste plant is capable of diverting 36,000 tonnes of AHP waste per year from landfill. This is equivalent to the volume of 32³ Olympic sized swimming pools.

AHPs are delivered to the West Bromwich plant for processing by commercial waste operators. The process then sees the waste fed into an autoclave, which starts to break up the AHPs, collapses the super absorbent polymers such that it is rendered inert and the moisture is released, and sterilises the material before further sort and separation of plastics and fibres and removal of contaminants. The plastics continue through granulation and multiple- washing stages before being bagged for shipment in flake form. These flakes can then be used or pelletised to be used in new products, such as roof tiles and the fibres used for industrial cardboard tubing and fibre-based construction materials. 95 per cent of the material input is treated, with the remaining solids sent to the sewer.

The opening of the plant follows a period of careful research and planning not only to refine the technology itself; in deed the UK plant is using autoclave technology which is a first for a Knowaste process - but also to gather the evidence to demonstrate the positive environmental impact of the process and to identify the most strategically effective locations for expansion beyond the Midlands.

³ Deloitte Life Cycle Assessment for Knowaste 2010



The benefits

The Knowaste process will generate up to 70% fewer greenhouse gas emissions than traditional disposal methods such as incineration and landfill. It will save 22,536 tonnes of greenhouse gases per year – equivalent to removing 7,487 cars from the road or switching off 102,430 LCD televisions.

These figures come from a recent lifecycle assessment, LCA, commissioned from Deloitte’s DCarbon8, which compared the different disposal and treatment systems and was peer reviewed by a panel led by Imperial College Consultants.

There are also positive outputs from the process, 95% of the materials are recovered; consisting of fibres and plastics. These will be used to produce, amongst other things, reformed plastics for home and the building industry, such as roof tiles, and in the case of the fibres, industrial tubing and construction fillers.

The future

West Bromwich is only the starting point for Knowaste in the UK and the company is actively moving forward with plans to invest a total of £25 million in at least 5 locations across the UK in the next 3 – 4 years.

2. FAST FACTS

- **Over 1m** – tonnes of AHP waste generated per year in the UK
- **36,000** – tonnes of AHP waste; which a typical Knowaste plant will divert from landfill each year
- 95% of materials recovered in the Knowaste process
- **Up to 70%** –reduction in carbon emissions from Knowaste process compared to landfill and incineration
- **6m** – more people over aged 65 between 2010 and 2035
-
- **2.7bn** – disposable nappies used each year in the UK

- **80,000** – Cubic metres of landfill saved per year with just one Knowaste plant.

- **5** Knowaste plants will
 - Have the capacity to treat nearly a fifth of the UK's AHP waste
 -
 - divert 400,000 m3 of waste from landfill, equivalent to 165 Olympic sized swimming pools,

 - Save 110,000 tonnes - of greenhouse gases, equivalent to taking 37,500 cars off UK roads,

 - Create 100 jobs, with an investment in UK green technology sector of £25m

3. FREQUENTLY ASKED QUESTIONS

Who is Knowaste?

Knowaste Ltd is a waste treatment company that specialises in the recycling of disposable nappies, adult incontinence and feminine hygiene products, collectively known as absorbent hygiene products (AHPs).

The company opened the UK's first absorbent hygiene products recycling facility in West Bromwich in September 2011.

Knowaste Ltd is wholly owned by Knowaste LLC, a private organisation which has exclusive rights and proprietary know-how for the technology in the UK and Northern Ireland.

How does the Knowaste process work?

The Knowaste recycling process uses established 'autoclave' technology which sterilises and partially breaks down the component parts of the waste materials so that plastics and fibres can be further separated and sorted for re-use in products.

What happens to the recycled materials?

Knowaste is a 2 stream treatment process reclaiming plastics and fibres. These output materials will be used to make plastic products such as recycling bins, roof tiles for the building industry or will be used in composite products replacing steel, concrete and wood. In the case of the fibres, Knowaste output fibres can be used as fillers in construction materials, landscaping and industrial tubing.

These markets have rigorous testing requirements and tests are currently on-going.

Where will the waste products come from?

The West Bromwich plant is capable of diverting from landfill or incineration 36,000 tonnes of AHP waste per annum. Currently this waste predominantly comes from the commercial waste sector, delivered to Knowaste from specialist hygiene waste contractors such as OCS/Cannon Hygiene, PHS All Clear and Initial Rentokil.

From these companies Knowaste receive waste from sources such as hospitals, children's nurseries, care homes and other non-domestic sites where AHPs can easily be collected and distributed to our recycling facility.

In addition, we are in talks with local authorities across the country who are looking into possible solutions to enable domestic AHP waste to be collected from households and recycled using our new facility.

What are the key benefits to commercial and local authority customers of using Knowaste's services?

The key benefits are landfill diversion, helping meet recycling targets, reducing CO₂ and long term avoidance of increasing landfill taxes. For the commercial operators, working with Knowaste offers a competitive edge in a tough economic environment. In the domestic sector, offering AHP collections and recycling can complement

weekly but particularly AWC and reduced capacity residual collections as well as offering greater choice to the resident.

How much of this sort of waste is generated in the UK?

It is estimated that more than 1 million tonnes of used AHP waste is generated annually; a proportion from commercial washrooms , elderly and child care centres and hospitals but the majority of the waste (c 800k tonnes), coming from the municipal sector.

Used AHPs account for 5 per cent of the UK's domestic kerbside waste stream and are some of the few remaining household waste items that go straight to landfill or incineration facilities.

What environmental impact does the Knowaste process have?

In 2009, the environmental arm of Deloitte, DCarbon8, was commissioned to carry out a life cycle assessment (LCA) of the Knowaste process in the UK. This assessment looked at the environmental impacts of Knowaste's two-stream process and the subsequent recyclates provided to industry and compared this scenario to current UK waste management scenarios i.e. landfill and incineration.

The report concluded that the Knowaste process reduces greenhouse gas emissions by up to 70% compared to landfill and incineration. A Knowaste plant saves 626kg of CO₂ for every 1 tonne of AHP waste processed. That is equivalent to taking 7,500 cars off the road or the total CO₂ emissions of 2,000 UK citizens.