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# PACKAGING Reporter

January/February 2011

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**EXTRUPET 'B2B' PLANT NOW BRC CERTIFIED: A WORLD FIRST**

# Extrupet Wadeville first in the world with BRC certification

Extrupet's PET recycling plant in Wadeville, Gauteng, has notched up another international first: it has become the first recycling plant in the world to be certified for British Retail Consortium (BRC) accreditation in the conversion of post-consumer PET flakes to rPET for use in food packaging at Grade 1.

This certification, which must be renewed annually, adds a most stringent validation to an already-impressive array of tests which Extrupet does on its "bottle-to-bottle" (B2B) rPET production to assure its customers that its rPET is absolutely hygienic and safe for food/beverage applications.

Chandru Wadhvani, COO of Extrupet, says that the BRC certification makes the plant a benchmark for other food grade rPET recycling plants internationally.

He says that BRC/Bureau Veritas inspectors told him that, through the years, they had never certified a recycling plant for BRC accreditation. In the developed world, plants producing food grade rPET have been in place since the early 2000s - but none has so far achieved BRC certification.

Earlier this year, the Wadeville plant became the first food grade rPET B2B recycling plant in Africa. All other PET recycling plants in Africa so far only produce much lower-value rPET fibre for applications in pillows, duvets, etc.

Wadhvani says that since the Wadeville plant began production in October 2009, it has experienced strong and growing demand for its food grade rPET.

Currently, the factory processes about 1.5m PET bottles, which it receives per month in bailed form from collectors and recyclers, into 1,200t of rPET. Of that 1,200t, 450t goes to making food grade rPET - and the balance is made into non-food fibre products.

The entire Extrupet plant, which is divided between the recently-installed food grade rPET



*Extrupet's food grade facility. Insert: Chandru Wadhvani.*

pellets-producing plant and the rest, is ISO 9000:2008 certified; only the segregated food grade section is BRC-certified.

## Upgrade

Because of increasing demand for food grade rPET, the food grade facility will be upgraded in January 2011 with the installation of a second vacuum reactor to the existing Erema Vacurema machine to increase the quantity of the throughput as well as its quality.

Extrupet's existing VacuremaÆ machine, using Erema's proprietary "super-clean" process, is at the heart of the food grade plant's process.

In this vacuum reactor, flakes are kept in a vacuum for a specified time at a specified temperature. The logic is that PET, like most plastics, is permeable, so contaminants could migrate into it during its life cycle. The super-clean process reverses this, ensuring the removal of

any volatiles that may be present - to a food grade standard.

However, if any of the three parameters - vacuum, heat or time - is not adhered to (for instance, due to power failure), then the system automatically diverts that production to a separate station to be bagged (in different-colour bags) for non-food grade purposes.

The Vacurema system provides real-time records so that the process parameters to produce a particular bag of rPET resin are traceable.

In 2000, Erema's super-clean technology achieved FDA approval



**COVER:** Extrupet's BRC accreditation is for the conversion of post-consumer PET flakes to rPET for use in food packaging at Grade 1.



for food grade rPET - first only for rPET bottles which had originally contained foodbev products; then for any rPET bottles; then for thermoformed products; and finally for rPET bottles which are used for hotfill applications.

### 100% rPET bottles

Furthermore, says Wadhvani, later in 2011, additional machines will be installed in the food grade facility to double production to about 1,000t/month of B2B rPET.

Currently, the plant is producing one grade of material. The impending upgrade will also allow it to produce pellets of such a quality that, if clients require it, they will be able to make their bottles of up to 100% rPET.

Currently, Extrupet's rPET is sold at a slight discount to virgin PET pellets, but this will obviously not be the case for the higher-grade rPET.

Currently in SA, for instance, Woolworths sandwich containers are made with 30% rPET from Extrupet (see opposite page). Woolworths has been trialling Extrupet's rPET for the past few months, and it will be rolled out into more of its products in the future.

Extrupet also has a number of converter clients, says Wadhvani.

He says major food companies are visiting the plant to make plans to use blends of the product. They are motivated by the desire for sustainability as well as the requirements of the new Waste Management Act, which includes the extended consumer responsibility concept. Use of rPET will allow them to make claims to be contributing to lower carbon footprints.

In SA, he says, retailers are particularly driving the process, pressurising their suppliers to use rPET for sustainability.

So far no SA company has packaged products on which the rPET content is advertised, but this is expected shortly. Overseas, a number of food companies now carry this claim on their packaging as a "badge of honour", says Wadhvani.



*Woolworths said in November that it had become the first major SA retailer to begin using post-consumer recycled plastic in food packaging. Since the beginning of September, its ready-to-eat sandwiches had been packed in containers made with 30% rPET made from recycled plastic bottles. Woolworths said it is now working towards moving beyond the 30% mark and also plans to roll out rPET packaging to juice bottles and other plastic packaging shortly.*



## ENVIRONMENTAL BENEFITS

British rPET producer, AWS Eco Plastics, recently announced the results of a detailed carbon study that it carried out over six months in 2010 on its facility. The results show that the carbon cost of producing its food grade rPET pellet, purePET 78, for 2010 is 254kg per ton compared with the carbon cost of producing virgin PET, which currently stands at 681kg/ton (having recently been revised down from 927kg/ton). This equates to a saving of 63% compared with the production of virgin material. AWS says these figures will improve further during 2011, with the carbon cost of purePET 78 dropping to 213kg per ton as its new plant reaches its full capacity and enjoys the associated economies of scale.

Extrupet - continued from previous page.

## THE EXTRUPET RPET PRODUCTION PROCESS

Besides the ISO and BRC certifications, an array of other measures ensures that Extrupet's rPET is absolutely safe for foodbev usage - in fact, many more measures than exist in overseas food grade rPET-producing plants, says Wadhvani.

He says Extrupet decided to go for "overkill" in ensuring its products' food state safety credentials and quality.

Most of the production process at the Wadeville plant is taken up in cleaning, sorting, recleaning and resorting the input material:

- Once the recycle material is debaled at the plant, it is cleaned for better sorting by Extrupet's automatic sorters. In automatic sorting, the reflection from a light is shone onto bottles passing on a conveyor to determine whether each item's material is for PET production or not. Reject bottles - for instance, HDPE bottles or bottles with PVC labels - are blown off. Extrupet has two automatic sorters in succession, and each is 95% accurate - resulting in over 99% aggregate accuracy, says Wadhvani.
- Nevertheless, as an added measure, Extrupet has a manual sorting line thereafter in which sorters perform a final check on the purity of the bottle stream.



A badge of honour on an overseas product.

- The sorted bottles are then ground into flakes which are subjected to a washing flotation process - mainly to remove glue used for sticking labels.
  - The washed flakes are then bagged for testing before being transferred to the separate food grade plant.
  - The food grade plant incorporates several safety/hygiene aspects such as a continuous positive airflow system as well as stringent access control via a fingerprint system.
  - Within the food grade plant, a Buhler Sortex machine examines, via light technology, each individual flake. Unsatisfactory flakes are blown off.
  - The flakes are conveyed into the Vacurema process; thereafter they go through an extrusion process to produce pellets.
  - As a counter-check, every bag of flakes used for food grade PET production is tested by two separate laboratories on the premises - one in the non-food fibre plant and the other in the new food grade section (which was specifically built with BRC standards in mind). The new laboratory in the food grade plant includes, among other equipment, a gas chromatography machine for ongoing testing of the flakes and chips.
  - As a further check, every three months, samples of the food grade PET pellets are sent for testing to two leading European testing establishments - the Fraunhofer Institute in Germany and Pira International in Britain.
  - The Wadeville plant runs 24 hours per day, but food grade flake is only produced during the day, for increased control.
- Extrupet: Tel 011-865-8363; chandru@extrupet.com

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German sausage and ham specialist Rogenwalder Mühle is selling its "Mühlen Würstchen" Knackwurst sausages in a lightweight, transparent, resealable plastic jar (without watery broth) to appeal to on-the-go consumers looking for a speedy snack and longer shelf life. Hilka Bergmann, head of Packaging Research at the EHI Retail Institute, says: "Convenience features such as easy opening, resealability and portioning aids are becoming increasingly prominent in package design."

