

'Total Eco' packaging material

Shree Korde shortlisted entrant for the 1995 Packaging Innovator of the Year awards explains the development of a new bio-degradable material for packaging.

Packaging is a necessity of the modern day society. Its main purpose is to protect the product until it reaches the consumer. So there is a misconception by many consumers that packaging is wasteful and unnecessary. Although we may think it is a modern day invention by humans, packaging is a very natural process seen in nature from the husk protecting the seedling in germination, to the pods protecting the seeds until the seeds reach their destination. By observation of nature, humans have tried to copy "natural" packaging to protect today's commercial products.

As always nature does things efficiently and effectively. All natural packaging is absorbed back in the natural cycle. In trying to imitate nature in modern society, efficient packaging methods have been developed to minimize waste of valuable materials. Unfortunately success has not been achieved in completing the cycle.

Modern packaging materials use either oil or paper based materials. Both require high energy consumption and processing during manufacture. Once used it has to be wasted if recycling is not cost effective. Some paper based products claim to be biodegradable, but this tends to be on a very long term basis.

Recycling durable materials like glass and steel is more successful than recycling plastics which are difficult to process. Due to their convenience, plastics are the most commonly used materials in packaging. This is especially true in the food and fast food industry. Although many food retailers have switched to using paper products wherever possible, making paper still requires a great deal of energy, and even recycling of it requires complex chemical and high energy processing.

The banana trunk material, in this respect is a totally ecologically sound concept. The trunk of the banana plant is not like most other plants. It is made up of rolled extended stalks of the banana leaves. The stem of the banana plant is underground and its main function is propagation. Nature has evolved the stalks in a specialised way to hold the whole structure of the plant, giving it both strength and flexibility. Patents for this unique material have now been published and its uses for packaging are being processed.

Ecological advantages

- 1 The material is not currently used for any commercial purpose and is therefore wasted as it cannot be used as animal fodder.
- 2 The material is available in abundance, and is a by-product. The banana plantation, harvesting and transportation of fruit is already a huge industry all over the world, to which a by-product like this will be very attractive and can easily be added on.
- 3 The processing required from the raw material to the finished product is minimal. The raw material itself is similar to paper in composition and requires little processing.
- 4 As the chemical processing to the finished product is minimal the product is still very close to its natural form and is truly biodegradable - as soon as it is exposed to the natural elements.

Commercial advantages

- 1 The raw material is 'free' at the moment and plentiful. The life cycle of a banana tree is much shorter than the life of a normal tree (18 months) so the whole cycle is reduced (unlike paper products).
- 2 Due to minimal processing requirements, an operation to produce units can be set up on a large or small scale, to suit the particular local conditions and still be cost efficient.
- 3 The 4 processes listed below can be carried out at separate locations and still be economically viable if the local environment were to require it:
 - Trunk collection
 - Peeling and drying
 - Making into sheets and then into clamshells
 - Sterilisation for hygiene purposes
- 4 Collection of raw materials can be either in dried form from the plantation itself, or as banana trunks and the drying and sheet making can be a large scale

operation in a centralized form. This gives the versatility required for working in developing countries, here most banana plantations exist.

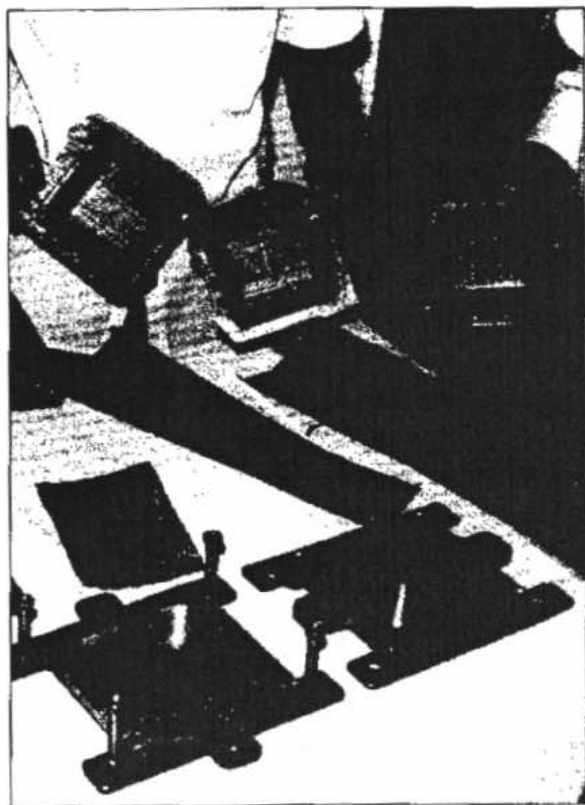
Packaging suitability

The product is ideal for 'one-use' throwaway packaging, ie disposable burger containers or display trays for fruit, meat or other consumer products. It can be embossed through a simple process. The units are 'microwaveable' with solid products inside. Colouring the product can be achieved although the natural colour is in itself appealing and instantly makes a link in the user's mind with environmentally friendly products. This has been proved through testing.

Limitations of the material

This material is best suited to solid products and is not suitable for liquid or semi-liquid products in its current form.

For further information/commercialisation interested companies should contact Mrs Korde Tel:(01256) 314858 or (0171) 2537611.



'Clamshells' made from the banana plant.