

Cash from Trash! Coconut Shells Bring Fortune...

Written by JP, Senior Business Analyst, Small Enterprise India
Sunday, 08 August 2010 20:25 -



Cash from trash! This is literally true in the case of coconut shell. Even now coconut shell is a discarded material. Kernel, water and husk of a coconut are the most valuable things which can spin money with value-addition. The shell is still used as firewood at village households and country bakeries. A small quantity is used for shell charcoal, ice-cream cups, handicraft materials and such products.

But the scenario has been fast changing. Indications are that coconut shell will soon become the much sought after material. Activated carbon units based on coconut shell are coming up at various parts of the world. Interestingly, China, which is not a coconut producing country, is the major player. Already it has set up 86 units and several units are at various stages of completion. Indonesia, a leading coconut growing country in the world, stands second with 67 units. India, the third largest coconut producer, is dotted with 46 units, while 20 units hum in Malaysia, another major coconut grower.

Philippines with 17 units and Hong Kong with 10 units are in the field. Countries like Vietnam, Japan, Singapore and Sri Lanka are also the manufacturers of coconut shell-based activated carbon.

Activated carbon has wide applications – from water treatment to war field. It acts as an agent of desulphurisation, debensolisation, deodorisation and decolourisation. Activated carbon is widely used as a water purifier at public water supply system, industrial effluent and sewage treatment plants and in household water filters.

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Another critical application is in gold refineries. Gold is separated from gold ore by washing with activated carbon from coconut shell.

Earlier, gold refineries used mercury for the purpose, which was a major river pollutant and now carbon replaced all such mercury process.

World's largest gold miner – Barrick Gold of the US- and second largest miner – Anglo Gold of South Africa – buy activated carbon for the purpose from the Kerala-based Indo-German Carbon.

Activated carbon is also widely used for gas purification and air filtering. In most of the developed countries the environmental law stipulates spray of carbon powder into chimney emission to absorb toxic materials before discharging.

It has applications in gas masks including the ones used to protect from nuclear fallouts, edible oil refineries, solvent recovery, air filtration, air conditioners and so on.

Another specialty of this product is its environmental friendliness.

Inputs to the process are coconut shell/ charcoal and water. No other process ingredients or chemicals are added. The process is developed in such a way that entire operation is at zero fuel consumption.

The unique structure of activated carbon produces a very large area of surface areas – 1 lb of granular activated carbon typically provides a surface area of 125 acres. (1kg = 1 million sq metres).

Steam activation process creates millions of pores on the surface of carbon and this increase the total surface area.

The coconut shell based activated carbon units in India are mainly located in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh Maharashtra, Gujarat, Orissa and Bengal. The marketing outlets are in metros and major cities including Mumbai and Delhi.

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R. Njanadevan, assistant director at the National Coconut Development Board says that the technology is locally available. In fact the board can supply the technology and introduce the manufactures of plant and machineries to the investors.

The board estimates that a plant with a capacity to produce 10 tonnes of activated carbon daily costs Rs.4.9 crore excluding the land cost.

For a smaller one with a 1.5-2 tonne per day capacity needs Rs. 1.5 crore. To produce one tonne of activated carbon needs coconut shell of 9,000 well ripped nuts.

Coconut Development Board pays subsidy of 25 per cent of the investment in activated carbon projects based on coconut shell with an upper limit of Rs. 50 lakh under the Coconut Technology Mission's programme to introduce new technology and diversify products.

Since the only inputs are coconut shell and water, activated carbon units never face a crisis due to shortage of raw materials. The country produces 8.7 billion coconuts annually and only a portion of coconut shell of them is used currently.

The product has wide applications and therefore the units are unlikely to be eclipsed by lack of demands for the products. Since activated carbon is a water and air filtering agent, the demand is high in developed countries which follow stringent air and water safety norms.

Because of this, most of the units are Export Oriented Units (EOU).

The EOUs are entitled for several cash incentives of both Central and State governments. The success story scripted by Kochi-based Indo-German Carbons promoted by MFAR group, a hundred per cent export oriented unit, is a clear indication of fortune that is in store for the activated carbon units in the country. After the initial hiccups, it moved smooth and now makes its presence felt in the world market.

A recent release of the company situated at Edayar Industrial Development Area said in the initial days during 1995 -99, unit was neither technically nor financially feasible. The chief promoter pumped in Rs 3 crore for the technology upgradation. By 2000, it showed sign of

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improvement. Then the capacity was raised from 3500 MT/annum to 4000 MT/annum. The quality became superb and achieved almost zero fuel production process. And finally company came out of woods.

Enthused by this, the investors set up another unit named Cochin Surfactants Pvt Ltd with a capacity of 2000MT/annum. During 2007, another unit – Activated Char Product – with a capacity of 5000 MT/annum launched. In the next year, the company opened a subsidiary in the US to expand its sales and support the end users of its products in the region.

Now the firm is the third largest manufacturer of coconut shell activated carbon. One more unit in Karnataka and marketing office in Middle East, Australia and Korea are in the pipeline. It hopes that by 2011, it will become world leader in the product.

Really, coconut shell based activated carbon is black gold.