

## Coconut Shell Based Products

Coconut shells are used for various ornamental purposes.



Instead of that coconut shell is also used for activated charcoal preparation. Activated carbon is a non-graphite form of carbon which could be produced from any carbonaceous material such as coal, lignite, wood, paddy husk, coir pith, coconut shell, etc. The activated carbon is extensively used in the refining and bleaching of vegetable oils and chemical solutions, water purification, recovery of solvents and other vapours, recovery of gold, in gas masks for protection against toxic gases, in filters for providing adequate protection against war gases/nuclear fall outs, etc.

### Process (Steam Activation)

The process of activation is carried out in two stages. Firstly, the coconut shell is converted into shell charcoal by carbonization process which is usually carried out in mud-pits, brick kilns and metallic portable kilns. The coconut shell charcoal is activated by reaction with steam at a temperature of 900oC -1100oC under controlled atmosphere in a rotary kiln. The reaction between steam and charcoal takes place at the internal surface area, creating more sites for adsorption. The temperature factor, in the process of activation is very important. Below 900oC the reaction becomes too slow and is very uneconomical. Above 1100oC the reaction becomes diffusion controlled and therefore takes place on

the outer surface of the charcoal resulting in loss of charcoal.