



# ACTIVATED CARBON

Welcome to  
**Deepex Export co.**

## What is Activated Carbon?

Activated carbon is a granular material produced mostly by roasting charcoal from coconut shells or coal at 800 to 1000°C to "activate" it. Impurities are removed by acid washing. Typically, it has pore sizes ranging from 500 to 1000nm and a surface area of about 1000m<sup>2</sup>/gram. A much purer form of activated carbon is produced by paralyzing polymer beads.



## The process of Activated Carbon:

- First Stage - We put the Raw Bituminous coal/anthracite coal/char coal & Steam coal in washed than dray.
- Second Stage - Then Coal gets crushed and graded.
- Third Stage - Then Graded Coal goes into Kilen for heating & steaming for activation.
- Final Stage - Then finally Activated Carbon has to be washed, dried & segregated.



## What does Activated Carbon remove from water?

In laboratory water purification, activated carbon is used in pre-treatment to remove free chlorine and chloramines from the feed water to reverse osmosis membranes and to remove trace organic impurities from purified water. In larger systems cylinders of activated carbon may also be used to adsorb larger quantities of organic impurities, the activated carbon removes unwanted color from water and improves taste in it.

## How does Activated Carbon work?

Activated carbon reduces free chlorine to chloride and carbon dioxide. It also breaks down chloramines by a relatively slow catalytic reaction to produce ammonia, nitrogen and chloride. Organic compounds are adsorbed in the pores of the carbon matrix. The large surface area of the activated carbon enables significant quantities of organic material to adsorb through ionic, polar and Van der Waals forces.

The very large surface area of activated carbons provides ideal growing areas for bacteria. Adding a bactericide, such as silver, has been used to minimize this effect but the carbon cartridges need to be changed regularly to keep bacterial build-up and shedding under control.

## What are the benefits of Activated Carbon?

Its major use in pre-treatment is to remove free chlorine and chloramines before reverse osmosis to prevent membrane damage due to oxidation. Activated carbon reacts very rapidly with free chlorine in water to produce chlorides; a relatively small volume of carbon can be effective. Over 5 times the volume of carbon is needed to catalyze the removal of chloramines.

High purity activated carbon is a highly effective absorber of organic compounds and is used to remove residual organic compounds in purified water. These may come from the feed-water or leached from the system or the ion exchange resins. It is a valuable aid in maintaining low TOC values, complementing UV oxidation.

The affinity of activated carbon for organics can also be used in vent filters to protect reservoirs of purified water. Activated carbon diagram



POWDER



GRANULES

# Granular Activated Carbon [GAC]



Deepex Export co. offers a varied range of activated carbon products. As a premier activated carbon manufacturer and distributor, our product range is suited to be used in many applications including health, safety, and environmental purposes. Whether it is coal, coconut, wood, or acid washed activated carbon products, we have you covered. Being a sought-after manufacturer and exporter of different types of activated carbon, we choose the best grade raw materials. Lowered operational costs, increased performance, and reduced frequency of carbon exchanges are some of the many benefits of Deepex Export co. activated carbons.

## Coal Base Activated Carbon [GAC]

Appearance	Black Granular
Practical-Size	4x8, 8x16, 16x30, 12x30, 8x30, 30x80
Hardness	90 to 95
ASH Content	max 6%
Total Surface Area	450 to 1000 m <sup>2</sup> /gm
Bulk Density	0.55
Moisture	5%
PH	8 to 10
Iodine Absorption	450 mg/gm+- 25 to 1000 mg/gm+-50

Coal based activated carbon originates from coal that has undergone a steam activation process. During activation, millions of pores are created on the surface of the carbon, increasing the total surface area. Coal based carbon has mainly meso-pores and macro-pores and is very popular in gas phase purification, potable water purification, wastewater purification and aquarium/pond water purification applications. Demand is typically high for this relatively low-cost filter media for both gas and liquid applications. This may be high in demand because of how highly requested coal is, as a fossil fuel, along with oil and gas. Many people choose to invest in the industry of fossil fuels, particularly oil, because of the high peaks in productivity, and the high demand for power. EnergyFunders tend to have a good range of oil investments. This explains why our coal-based activated carbon is so popular. Carbon Activated stocks a large variety of granular and pelletized grades (3mm, 4mm & 5mm) in addition to powder carbon. We have excellent sourcing capabilities for a number of specialized coal based activated carbons available for direct shipment in container loads to worldwide customer destinations. Coal base activated carbon has a high surface area characterized by both mesopores and micropores.



## Coconut Base Carbon [GAC]

Mesh Size (us sieve)	4x8, 6x12, 8x16, 8x30, 12x40, 20x50
Iodine Value	800 to 1350 mg/g
ccl4 / ctc % min	50 to 80
Surface Area m2/g	850 to 1350
Apparent Density g/cc	0.40 to 0.54
Hardners % min	95 to 99
ASH Content	5%
Moisture	5%
PH Value	9 to 11



Like its name, coconut shell activated carbon comes from the coconut shell. To create its activated carbon form, the coconut undergoes a steam activation process. During activation, it creates millions of pores at the surface of the carbon thus increasing the total surface area. Coconut shell carbon has mainly micro-pores to meso-pores and due to its unique distribution of pore diameter, coconut shell activated carbons are very popular in the gas phase purification and potable water purification industries. Coconut shell-based activated carbons are the least dusty. Predominantly microporous, they are well-suited for organic chemical adsorption. Coconut shell-based carbon has the highest hardness compared to other types of activated carbons, which makes it the ideal carbon for water purification. In terms of base materials, coconut shell and wood are renewable resources. Coconut plantations with millions of acres of land continue to provide all the benefits of green trees to our environment in spite of using billions of coconut shells per year for activation. Activated carbon is produced from coconut shells in a two-step process. The first step in activation is to carbonize the shells to drive about two-thirds of the volatiles out of the shells, creating a carbonaceous mass full of tiny pores. In the second stage, this carbonized base material is activated at high temperature (1,100 °C/2,012 °F) in steam. Activation temperature and the amount of activation time are important to create the internal pore networks and to impart certain surface chemistries (functional group) inside each particle. In essence, the total activation process gives carbon its unique adsorption characteristics.

## Wood Base Carbon [GAC]

Iodine Value mg/g	500 to 1200
ASH	10%
Moisture	10% max
PH	9 to 11
Hardners	80 to 85 min
Apparent Density	280 320 kg /m <sup>3</sup>



## Activated Carbon Application

Deepex Export co. is engaged in the manufacturing of granular wood based activated carbon. We produce top-grade activated carbon from selected woods like Babool and Bamboo. The performance of granular wood based activated carbon is determined by several factors including the degree of activation, production methods, and the choice of raw materials.

Deepex Export co. the best granular wood-based activated carbon manufacturer & supplier is quite particular about every aspect of manufacturing. Whether it is choosing the right raw material, appropriate production methods, or packaging, we pay attention to the minutest of details

- Water Treatment & Water Filtration
- Air Purification
- Gas Purification
- Chemical
- Food & Beverages
- Gold Recovery
- Pharmaceuticals
- Soil Remediation
- Solvent Recovery

# Powder Activated Carbon [PAC]



PAC is a fine form of activated carbon with particle size of less than 0.18 mm (80 ASTM Mesh) according to ASTM definition or atleast 90% by weight of particles with size of less than 0.5 mm (35 ASTM Mesh) according to the EU Council. Owing to their very small particle size they offer certain advantages over granular and pelletized forms, such as larger accessible porosity and faster mass transfer which accounts for high adsorption rates.

Deepex Export co. provides PAC derived from 3 raw materials viz., wood, coal and coconut shell, each available in various mesh sizes, unwashed/washed, and standard as well as customizable properties. We have the capability to manufacture PAC through both steam activation and chemical activation routes. We also offer unwashed, water washed and acid washed grades with tailorable adsorption properties



## Powder Carbon Wash [PAC]

Appearance	Fine Black Powder
Methylene blue mg/g	220 to 440
kmn 04% min	45 to 90
ASH	1.0% to 4%
Iron ppm max	250 to 50
Bulk Density	0.55
Acid Soluble max	1.5%
Water Soluble max	1%
PH	6 to 7.5
Moisture max	5% to 10%
Chloride ppm max	1200 to 100



## Powder Carbon Unwash [PAC]

Methylene blue mg/g	100 to 450
kmn 04% min	25 to 90
Iron ppm max	1000 to 600
Acid Soluble max	12 to 5
Water Soluble max	1 to 4
PH Value	7 to 11 (Adjust)
Moisture	10 to 11



## Powder

MB Value mg/g	100 to 320
km n04 % min	25 to 70
ASH %	20 to 7
Iron ppm	1000 to 500
Acid Soluble	10%
Water soluble	5 to 2
l.o.d	10%
Prarticale-Size	98% passed through 100 mash
PH	Alkaline



# Activated Carbon Application







**DEEPEX EXPORT co.**

## Contant us

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