



# Activated to excel with Activated Carbon

## - the export opportunities

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Indo German Carbon Limited is in the fore front of Activated Carbon Industry in India being the first plant to be established with German Collaboration. From mere production of 1,500 MT, now together with its sister concerns Cochin Surfactants Private Limited (CSPL), Kalpa Char Products Pvt Ltd (KCPL) and Active Char Products Private Limited (ACPL), it has an annual production capacity of 12,000 MT; and is one of the largest manufacturers of coconut shell based Activated Carbon in the world. It exports to more than 50 countries. The group has a marketing subsidiary at USA named M/s. Indocarb Corp., Pittsburgh, USA. IGCL started commercial production and exports from 1998 onwards. Mr. Abdul Basheer M M, Managing Director of Indo German Carbons Limited, is a technocrat with broad vision and diversified plans for the future of the company.

### Product & Market Overview

Activated Carbon is a form of carbon that is activated by a carefully controlled oxidation process to develop a porous carbon structure. It is used worldwide to protect human health and the environment,

and to improve the quality of life. The imperfect structure results in a high degree of porosity and over a broad range of pore sizes, from visible cracks and crevices to gaps and voids of molecular dimensions. The specified structure of carbon gives it a very large surface area which allows the carbon to adsorb a wide range of compounds. Activated carbon has the highest volume of adsorbing porosity of any material available to mankind. To put this into perspective, 5gms of activated carbon would have the surface area of a football field. The global importance of activated carbon as a filtration and purification technology has led to the development of a variety of products for various applications.

Activated carbon can be made from many substances containing high carbon content such as coconut shells, coal and wood. The raw

material has a very large influence on the characteristics and performance of activated carbon and plays a major part in determining its ability to adsorb certain molecular species. Coconut shell based steam activated carbon with its unique properties is a superior adsorbent.

### Application areas

The major market areas include vapour phase applications which include various filters and emission control devices and liquid phase applications including commercial, industrial and house hold water filtration and numerous other applications as listed,

Liquid phase markets comprises mainly of water filters for residential, commercial and institutional applications, Industrial and commercial water treatment to remove chlorine & other impurities

Vapor phase markets comprises mainly of four distinctive applications like industrial respirators, purification of Indoor air quality, cabin air filtration in vehicles, emission/odor control including flue gas emission and cigarette filters

Other markets comprises mainly of, gold mining – recovery of gold

from mine tailings, catalyst supports in synthetic chemical reactions, plastic, chemical and pharma industries.

Medicinal carbon for human consumption to remove poisonous toxins from body

### The markets

Environmental concerns boost demand - increasing concern over environmental pollution and quest for pure water has resulted in growing demand for activated carbon in the removal of contaminants from both liquid and gas streams. The worldwide market for granular and powdered forms of carbon is about 5,50,000 tonnes per year and the global consumption is growing by 4-5% per annum. The introduction of more stringent environmental legislation worldwide has increased the demand for activated carbon. Water treatment provides both the largest market and the main area of growth for activated carbon. The worldwide market for coconut shell based carbon will be above 1,25,000 tonnes per year.

United States of America has the largest and potential market for activated carbon in the world and the market demand for coconut shell activated carbon in the country was more than 40,000 metric tonnes in 2015 valued above at \$70 million. Demand in this market is forecast to increase by 5% every year for the next few years. Higher growth rates are also forecasted in Canada and developing countries in Latin America & in Mexico where the combined market is roughly 10,000 metric tonnes per annum. Growth will also be higher in terms of value because of the increase in consumption of speciality granular, powder and impregnated grades of carbon. Other major destinations are Europe, Japan, Korea, Africa, Australia and Middle East.

### Growth Opportunities

United States government has enacted the Clean Air Mercury

Rule (CAMR) regulating mercury emissions from power plant flue gas and the regulation call for a 70% reduction in mercury emissions by 2010 and a further reduction of 90% by 2018. The lead abatement technology is the injection of activated carbon and the market potential will be US \$500 M per year. United States cigarette manufacturers have been investing heavily into R&D of a health related "reduced risk" cigarette. This performance will be dependent on the effectiveness of the filter and once the major cigarette brands convert fully to this model, the demand will be more than five times the present activated carbon consumption. MTBE, an octane booster in gasoline has contaminated many aquifers that now require remediation. Activated carbon is suitable for groundwater remediation. Demand for activated carbon blocks for household use is also increasing at a rapid rate. Long term growth for activated carbon will continue to be linked to enactment and enforcement of environmental legislation such as Safe Water Drinking Act and Water Quality Act. The stage two disinfection by-product-rule is expected to generate more than 600 new activated carbon systems nationwide. New onboard recovery/vapour recovery regulations will require car manufacturers in the United States to better control gasoline evaporation, a development that is expected to boost demand for activated carbon in canisters that control hydrocarbon emissions in motor vehicles.

### Competition & Advantages

United States demand for coconut shell activated carbon is above 40,000 metric tonnes now and is estimated to be 50,000 metric tonnes by 2020. Calgon Carbon Corporation claims to have a share of 20% of the market with CABOT, USF Westates had an estimated combined share of 30% of the

market. Most of the above listed companies do not have a direct manufacturing facility of coconut shell based activated carbon. They are dealing with activated carbon sourced from different countries including India, Sri Lanka, Philippines & Indonesia. Since Indo German own manufacturing facilities in India with world class production lines which can always guarantee the quality and competence, Indo German does have an advantage and can be highly competitive in the market place. For several applications including gold refining & gas phase applications, the hardness and lower impurity content of activated carbon are extremely critical. Activated carbon from the Indian sub continent region is considered to be the best in these properties, which always gives an edge to Indocarb products in the market. IGCL products are highly reputed in several gold mines operating in Africa and Australia. United States being a major gold producer, references/referrals from worldwide gold operations will be an added advantage. The manufacturing facility located in India is among the largest production facilities in the world with 33 million pounds capacity.

### The Constraints

Raw material shortage due to climatic changes and various other reasons is a main threat to the industry. The fluctuation in exchange rate also affects the exports of activated carbon. As and when the INR is depreciated, the overseas customers will quote in US\$. As per recent EXIM policy, under MEIS scheme, the exports of activated carbon will be eligible for 2% scrip. Since the raw material of activated carbon is an agro product and also this sector generates employment, the activated carbon exports may be granted 5% scrip. ■