



Activated
Carbon
for Food and
Process
Industries



Jacobi
THE CARBON COMPANY



Food Processing

Activated carbons exhibit unique properties in that they contain a diverse range of pore dimensions. This versatility allows the adsorption of a wide range of chemical compounds of differing mass and size. Often used as a processing aid, such as the purification of edible oils, sugar, artificial sweeteners and glycerine, the challenge is to remove contaminants at opposite ranges of this spectrum. By using advanced production techniques, and careful selection, Jacobi Carbons has ensured that the ColorSorb™ range of activated carbons are suited to the most difficult purification duty.

Typical food applications include:

- Beer - Correction of taste
- Lactic acid - Decolorisation of extracts
- Citric acid - Fermentation and purification
- Gelatine - Purification and decolorisation
- Glycerine - Stabilisation and aging control
- Fruit juice - Decolorisation and deodorisation
- Scrap Candy - Off-specification product recycling
- Wine - Control of haze, odour and decolorisation
- Colorant - Pigmentation used in licorice production
- Beverage production - Tea & Coffee decaffeination
- Soft drinks - Sugar syrup decolorisation and stabilisation
- Edible oil - Colour modification and toxin (PAH) removal
- Sweeteners - Sucrose, glucose and fructose syrup purification
- Mono Sodium Glutamate (MSG) - Decolorisation and stabilisation

By-products from the refining of dairy foodstuffs cause issues with the purity of lactose which is used as the carrier in many respiratory medicines. Purification with ColorSorb™ products ensures no reaction with the API applied to the lactose, and provides a colour-free substrate.



ColorSorb™ activated carbons are used throughout the food industry to purify and assist in preservation of food stuffs. Industrial scale production of foods is reliant on activated carbon for safety and quality



The food industry demands the most stringent levels of product purity should be maintained. All ColorSorb™ products are compliant with Food Chemical Codex and standards for ingredients.

Product Range

Jacobi Carbons manufacture the ColorSorb™ range of activated carbons from a variety of raw materials according to the application. Utilising traditional sources of carbon like coal and wood, and combining them with newer materials such as lignite and coconut shell, we are able to produce the ideal product for the application.

Application	Product	Comment
Decaffeination	ColorSorb™ W7-H	High purity, low chlorides
Soft drinks	ColorSorb™ HP120A-LM	Bulk decolor, neutral pH
Edible oil	ColorSorb™ XFP21	Combined colour and PAH
Sucrose	ColorSorb™ BAK	pH buffering capability
Glucose, HFS	ColorSorb™ H150-LF (GAC)	Low soluble Fe content
	ColorSorb™ HP120N (PAC)	Semi-acid pH range (4-7)
Glycerine	ColorSorb™ H620	Mesoporous adsorbent
Wine (Decolor)	ColorSorb™ HP-OENO	Optimum capacity
Wine (Deodour)	ColorSorb™ CP1	Microporous adsorbent
Colorant	ColorSorb™ E153-Pharma	Full monograph compliance
MSG	ColorSorb™ HPX-N	Color and organic removal
Lactic acid	ColorSorb™ HP120	Pharmaceutical purity
Fruit juices (apple)	ColorSorb™ CP1	Patulin removal

THIS INFORMATION IS INTENDED AS A GUIDE ONLY AND FULL SPECIFICATION OF GRADES SHOULD BE TAKEN IN CONJUNCTION WITH YOUR LOCAL JACOBI CARBONS REPRESENTATIVE





Industrial Purification

Processes and duties

Throughout industry there are a myriad of synthesis and refining operations of natural and man-made products that give rise to by-products that constitute a contaminant to the target material. These may derive from reactions between certain ingredients, process control issues or due to contamination from impure raw materials. It is the correction that can be achieved by using activated carbon that offers a solution to manufacturing plant operators worldwide.

In some cases the use of ColorSorb™ products is even necessary to refine the raw materials in an attempt to prevent the formation of by-products later in the process train. Whatever the role, Jacobi Carbons can supply a standard grade or individually specify a unique product that best serves the application required.



The mining and processing of phosphorus bearing ore to produce phosphoric acid often yields a product with a green discoloration. By processing with ColorSorb™ activated carbon, this material can be upgraded to food quality product

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Product Range

Application	Product	Comment
Acid purification (HCl)	ColorSorb™ H150-LF	Low solubles, granular
Acid purification (H ₃ PO ₄)	ColorSorb™ H620	Decolor, low solubles, granular
Amino Acids	ColorSorb™ HP120N	Decolor, semi-acid pH (4-7)
API purification (decolor)	ColorSorb™ HP series	Decolor duty
API purification (organic)	ColorSorb™ G9/TSA	Organic removal, high purity
Galvanising solutions	ColorSorb™ G9	Phosphate free product
Gelatine	ColorSorb™ HPX-N	Combined decolor and deodor
Glyphosate production	ColorSorb™ PAKT	Catalytic action
Plasticiser	ColorSorb™ TSA	High purity
Precious metal recovery	ColorSorb™ TSA	Low soluble mineral content
Shellac	ColorSorb™ Z3	Maximum decolor capacity

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By the removal of toxins, undesirable taints and pollutants, ColorSorb™ activated carbons are used to recover a variety of waste industrial chemicals for reuse and protection of the environment

Activated carbon is normally utilised in two very different processes, depending on the nature of the application; the duty required; and the process constraints.



Powdered Activated Carbon (PAC)

Where the treatment process lends itself to the use of batch treatment, or where the activated carbon with the best effect has low mechanical durability in granular form, the use of a powdered material is implemented. Here the powdered product is added to the raw liquor, held in suspension for some time (contact or residence time) and then filtered using standard techniques. This mode of operation also permits the blending of the activated carbon with other materials such as bleaching earth (common in edible oil treatment).

Due to the ability of activated carbon to be used to equilibrium capacity, the same material can be used in low load, followed by high load adsorption points in the treatment system. This counter-current technique is highly cost-effective and optimises PAC usage.

Granular Activated Carbon (GAC)

Activated carbon in powdered form is extremely versatile and can be used as required. However, this type of batch operation is often problematic. Handling powdered activated carbon is a source of dust and contamination of final product. It is labour-intensive and does not optimise the adsorption capacity of the activated carbon.



Operation and Application

As such, in a modern refinery it is often preferred to use granular activated carbon in a continuous treatment process. Moreover, granular activated carbon can be thermally regenerated to recover the adsorptive properties and despite have significantly higher costs to install initially, has a very low operational cost in relation to the use of PAC.

GAC may be used in static beds which are part of a fixed installation or part of a mobile filter system (Jacobi Carbons MFU range). For large volume throughput or where it is necessary to continually regenerate the GAC, a moving (or pulse) bed system is employed. In this process, the liquor being treated flows in counter-current to the GAC. Periodically the GAC is removed (or slugged) from the column and replaced with new or regenerated GAC at the top of the column. Reactivation of GAC provides a cost-effective usage of activated carbon and permits continuous operation of the treatment system.



Jacobi Carbons has developed the most diverse production base in the industry with manufacturing plants, reactivation plants and sales offices located in 19 countries around the world.

The Global Company



MANUFACTURING PLANTS

China	The Philippines
France	United Kingdom
Germany	United States
India	Vietnam
Italy	
Japan	
Sri Lanka	

SALES OFFICES

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China	Singapore
Finland	Spain
France	Sweden
Germany	Switzerland
India	United Kingdom
Italy	United States
Japan	
Malaysia	

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