

CPG® LF

Acid Washed Agglomerated Coal Based Granular Activated Carbon

DESCRIPTION

CPG® LF carbons are acid washed agglomerated coal based granular activated carbons specially designed for the purification and decolourisation of aqueous and organic liquids where low ash and low leachables content are required.

CPG® LF carbons are produced from selected grades of bituminous coal by a highly developed and strictly controlled manufacturing process to a reliable and consistent product standard. This ensures a high quality product with an ideal porosity offering optimum kinetics for the adsorption of a wide range of coloured organic impurities.

FEATURES

Acid washed agglomerated coal based granular activated carbons have several properties which explain their superior performance in a wide range of applications:

- Produced with very **low acid soluble ash** and iron contents
- The activated carbon granules are uniformly activated throughout the whole granule, not just the outside. This results in **excellent adsorption properties** and **constant adsorption kinetics** in a wide range of applications
- Produced from a pulverised blend, results in a **consistent high quality product**
- High mechanical strength of the coal based carbon gives **excellent reactivation performances**
- Agglomerated coal based carbons are suitable for **multiple reactivations** compared to other base materials such as peat and wood
- Produced with **virtually no fines or dust** and are therefore particularly suitable for food and pharmaceutical applications
- **CPG® LF** conforms to the latest edition of the US codex specifications, "Food Chemicals Codex" and to the German codex specifications; Bundes-gesetzblatt Juli 18 1984 Nr.30 Aktivkohle Liste10.

SELECTION

CPG-LF carbons are the leading acid washed granular carbons used worldwide for the decolourisation or purification of food and high purity products with a low or neutral pH:

- Decolourisation of natural and synthetic sweeteners
- Decolourisation of food acids and additives
- High purity chemical and pharmaceutical manufacture
- Inorganic and organic acid purification

CPG® LF 12x40 and **CPG® LF 8x30** have a typical mean particle diameter range of 1.3 mm and 1.5 mm, respectively. In general, the smaller the granule size, the better the adsorption performance, therefore **CPG® LF 12x40** should be selected. If the pressure drop is too high with **CPG® LF 12x40**, **CPG® LF 8x30** should be selected.

PROPERTIES

SPECIFICATIONS	CPG® LF 8x30	CPG® LF 12x40
Molasses Number, min.	210	210
Iodine Number, min., mg/g	900	950
Abrasion Number, min.	80	78
Moisture Content, as packed,	3	3
Mean Particle Diameter, mm	1.4-1.7	1.2-1.4
Acid Soluble Iron, max., wt%	0.01	0.01
Extractable pH	5-8	5-8
Mesh Size (US sieve series)	8x30	12x40
> 8 mesh (2.36 mm), max. wt%	10	-
> 10 mesh (2.00 mm), max. wt%	-	5
< 40 mesh (0.425 mm), max. wt%	0.5	0.5

(Please refer to the Sales Specification Sheets, which state the Chemviron Carbon test method used to define the above specifications. Copies are available upon request.)

TYPICAL PROPERTIES	CPG® LF 8x30	CPG® LF 12x40
Bed Density ¹ , kg/m ³	450	450
Hardness Number	95	95
Surface Area (N ₂ BET method ²), m ² /g	900	950
Voids in Dense Packed Column, % Vol/Vol	36-40	36-40
Specific Heat at 100°C - kJ/kg.K	1	1

¹ Bed Density is used for adsorber sizing.

² Brunauer, Emmett and Teller, J.Am. Chem. Soc. 60. 309 (1938).

RECYCLING BY THERMAL REACTIVATION

Once granular activated carbon is saturated or the treatment objective is reached, it can be recycled, by thermal reactivation, for reuse. Reactivation involves treating the spent carbon in a high temperature reactivation furnace to over 800°C. During this treatment process, the undesirable organics on the carbon are thermally destroyed. Recycling by thermal reactivation is a highly skilled process to ensure that spent carbon is returned to a reusable quality. **Chemviron Carbon** operates Europe's largest reactivation facilities and daily recycles large quantities of spent carbon for a diverse range of customers. Recycling activated carbon by thermal reactivation meets the environmental need to minimise waste, reducing CO₂ emissions and limiting the use of the world's resources.

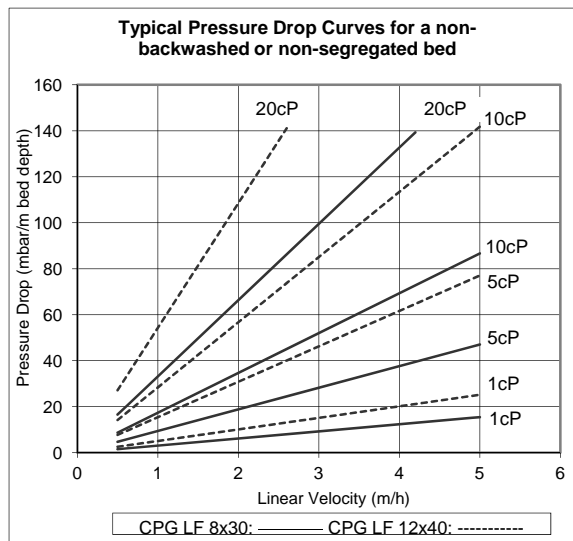
CPG® LF's high adsorption capacity enables continuous decolourisation cycles to be carried out, after which the carbon can be thermally reactivated for repeated use avoiding waste disposal costs. Sweetening-off of spent granular carbons prior to reactivation leads to valuable product recovery and significant savings in product loss. The combined high mechanical strength of **CPG® LF** with the transport pores give the carbon **excellent reactivation performance** and **low losses** during reactivation.

DESIGN INFORMATION

Design parameters for **CPG® LF** will depend on the application it is used in. Following are a range of typical operating conditions:

- Superficial contact time 60-240 min.
- Bed depth 1-10 m
- Linear velocity 1-5 m/h

Pressure drop per metre of bed depth for **CPG® LF** carbon is shown for different liquor viscosities. This data was obtained in down flow columns with a normal packing arrangement in which the carbon was pre-soaked in hot liquid and charged to the column as slurry. The bed density of the charged carbon was calculated to be 450 kg/m³.



PACKAGING

- 25 kg bags
- Big bags
- Bulk tanker

SAFETY MESSAGE

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low-oxygen spaces should be followed.

QUALITY

Each of our worldwide operations has achieved **ISO9001:2008** certification for their quality management system related to activated carbon. **Chemviron Carbon** guarantees the specifications against representative sampling.

CHEMIRON CARBON

Chemviron Carbon, the European operation of Calgon Carbon Corporation, is a global manufacturer, supplier, and developer of granular activated carbon, innovative treatment systems, value added technologies, and services for optimising production processes and safely purifying the environment.

With our experience developed since the early years of the twentieth century, facilities around the world and a world-class team of over 1,200 employees, Calgon Carbon Corporation can provide the solutions to your most difficult purification challenges.

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