



Water Treatment

Carbon and Media Cartridges

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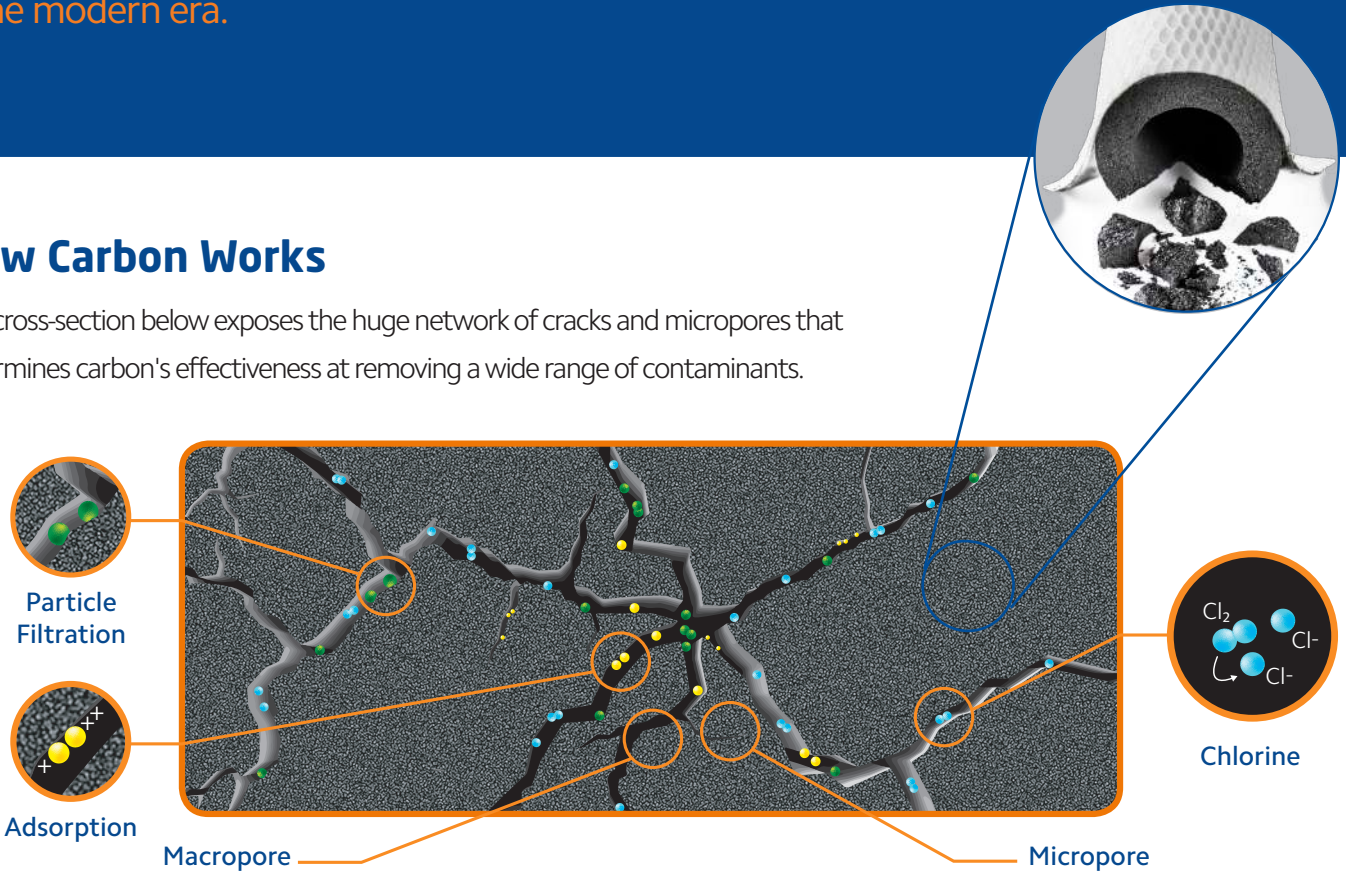


Carbon Technology

Utilised for several hundred years, carbon is considered one of the oldest means of water purification. Although impossible to trace the exact date and time, there is evidence of its usage and importance throughout history, from the ancient world to the modern era.

How Carbon Works

The cross-section below exposes the huge network of cracks and micropores that determines carbon's effectiveness at removing a wide range of contaminants.



Particle Filtration Sediment and Suspended Solids

Every carbon block cartridge has a given micron rating to indicate the physical size of suspended particulate that can be removed by the cartridge. To prevent premature sediment blockage before the chlorine capacity of the carbon has been exhausted, pre-filtration, such as the SPECTRUM SSP or PSP, is recommended to prolong the life of the cartridge.

Adsorption Organics and Heavy Metals

Carbon is a naturally adsorptive media, removing dissolved contaminants from a solution. When heated to 870°C, during the activation process, millions of tiny micropores are created throughout the structure of the cartridge, attracting large organic molecules and heavy metals to the surface.

Chemical Reaction Chlorine and Chloramine

Through chemical interactions with the activated carbon, reactive chlorine molecules are converted to less reactive chloride ions. Chloramine can also be removed through this process although the reaction occurs at a much slower rate. Speciality cartridges such as the SPECTRUM PCB have been specifically designed to effectively target chloramine.

Carbon Flow Rate

The longer water comes into contact with carbon, generally the more effective the treatment process will be, whether removing organics, heavy metals, chlorine or chloramine. Even a small increase over the recommended flowrate can cause dramatic decreases in carbon treatment's effectiveness. Therefore it is imperative to size a carbon treatment system properly, ensuring that the flowrate allows enough contact time to remove the undesired contaminants. The recommended flowrate for each cartridge is shown on the product page (as illustrated, right).

		@ Flow Rate (LPM)	
		3.8	7.6
Max. Operating Temp. 52°C		7.6	7.6
Max. Operating Pressure 2.5 bar		7.6	7.6
SCB Properties			
Capacity (L)	Chlorine Reduction (L) @ 0.2ppm	Pressure Drop (Bar) @	Flow Rate (LPM)
113,750		0.3	3.8
227,500		0.3	7.6
356,850		0.4	7.6
713,700		0.4	15.1
*Chlorine capacity using 2mg/l free available chlorine at 0.5mg/l breakthrough			

Carbon's Effectiveness at Removing...

Excellent

- Chloramine
- Chlorine
- Dyes
- Glycols
- Herbicides
- Hydrogen Peroxide
- Insecticides
- Iodine
- Odours
- Oil-dissolved
- PCBs
- Pesticides
- Sodium Hypochlorite
- Taste
- THMs

Good

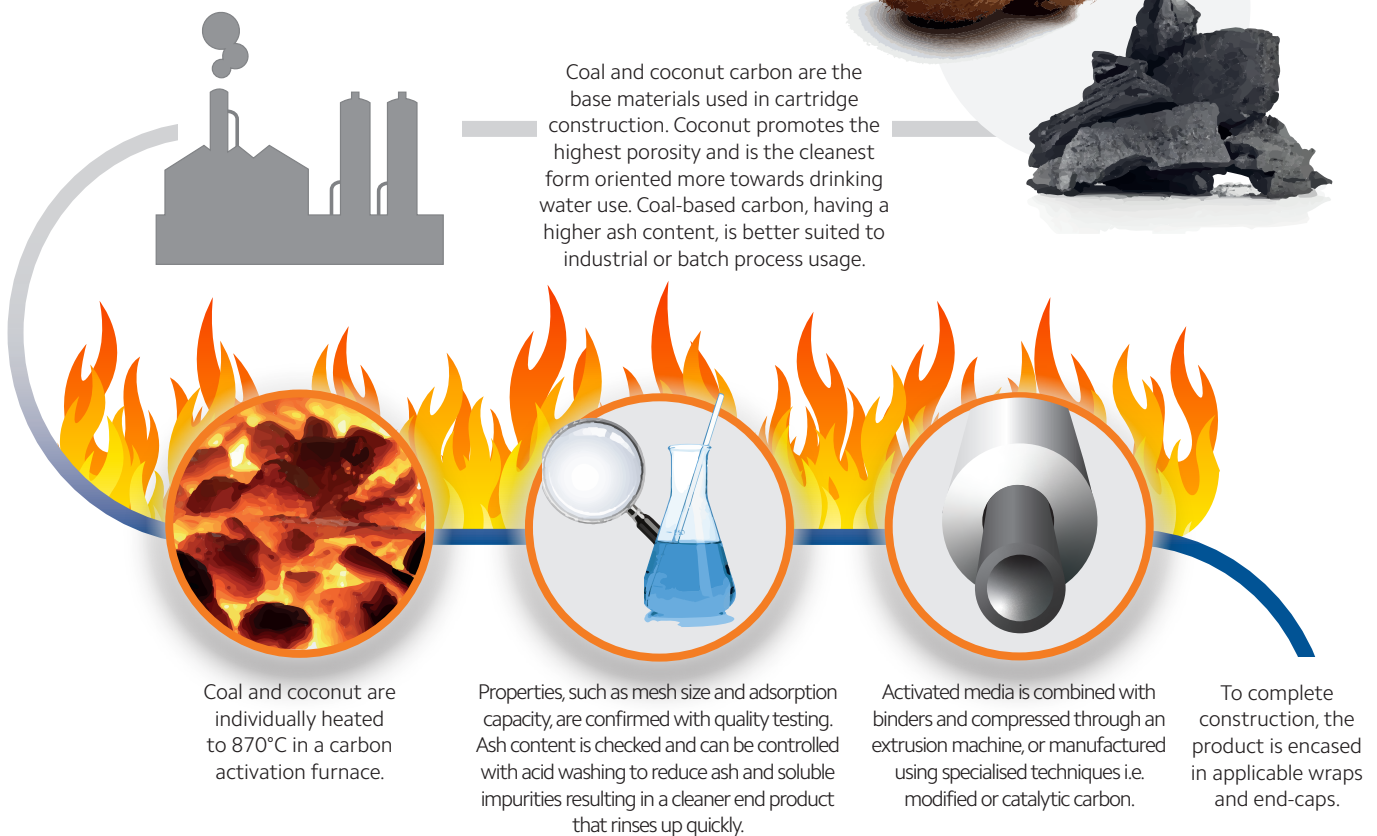
- Organic Acids
- Organic Salts
- Potassium Permanganate
- Solvents
- Sulphonated Oils
- Tannins

Fair

- Acetic Acid
- Detergents
- Heavy Metals
- Hydrogen Sulfide
- Plating Wastes
- Soap

Carbon Cartridge Construction

From raw material, through to activation and end product.



Modified Carbon Block
e.g. CFB-Plus

An advanced technology, Fibredyne combines dissolved contaminant removal with excellent sediment reduction. Uses powdered carbon for effective chlorine reduction.



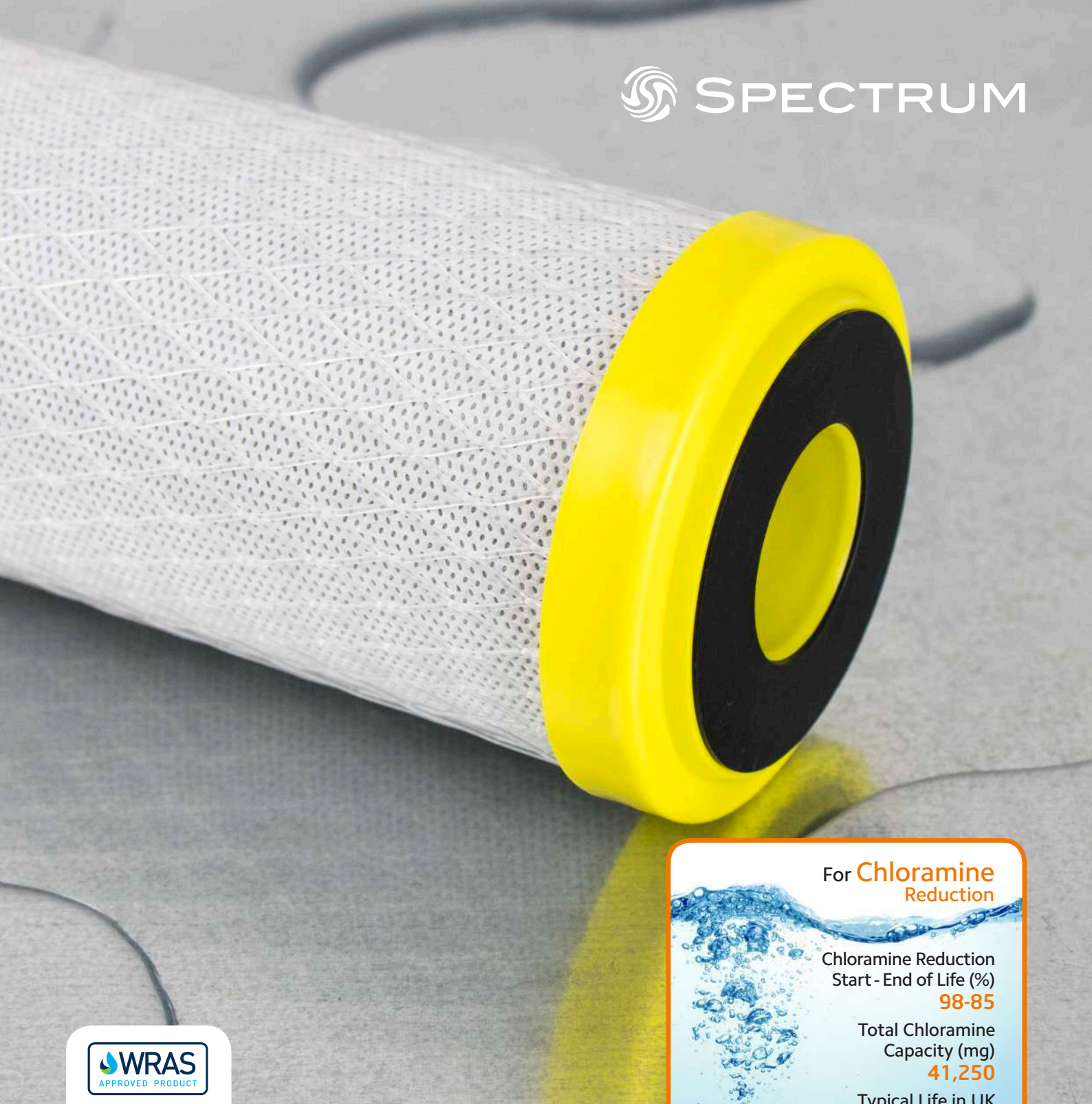
Powder Carbon Block
e.g. SCB & PCB

Finer carbon mesh size increases surface area, ensuring highly effective removal of small contaminants such as chlorine. Perfect for drinking water applications.



Granular Carbon Block
e.g. CB & ECB

Traditional carbon technology, more effective at removing large molecules such as odours. Suitable for commercial and industrial applications.



For Chloramine Reduction



Chloramine Reduction Start - End of Life (%)	98-85
Total Chloramine Capacity (mg)	41,250
Typical Life in UK Water (L)*	206,250

Performance based on 10" cartridge. * Life in UK water based on free chloramine concentration of 0.2mg/l.

870 Carbon Block - Premier Ultimate Chloramine Reduction

The SPECTRUM PCB is specifically formulated for effective chloramine control and the only cartridge to offer this feature within the range. Having been manufactured within a five-stage process, this exceptional catalytic activated carbon cartridge offers up to 10 times the capacity of the SCB. Essential for use in public water supplies where

chloramine has been added as the disinfecting agent of choice, the PCB will typically be found within applications including aquatics and renal dialysis. Rated at one micron, pre-filtration from the SPECTRUM TruDepth range, such as the PSP at five micron, is recommended to maximise service life and prevent premature blocking.

Key Features

- Ultra porous, modified powder activated carbon, exceptional at targeting chloramine
- Chlorine capacity up to 10x higher than the SCB
- Reduces the risk of haemolytic anaemia
- 1µm filtration level to remove fine sediment (5µm pre-filtration, i.e. SPECTRUM PSP recommended to extend life)
- Long service life for chlorine reduction

Typical Applications

- Hydroponics
- Renal dialysis
- Public drinking water supply
- Aquatics

Configurations

Micron (µm)

1

Length (")

9¾ 20 30 40

Diameter

Standard Large = BB

Compliance

WRAS Approved
FDA Compliant Materials
NSF/ANSI 42 Certified Materials

Materials of Construction

Carbon Type
Catalytic Activated
Coconut Carbon

Netting
Polypropylene

End-cap
Polypropylene

Gasket
EPDM

Wrap
Polypropylene

Specification

Max. Operating Temperature
52°C

Max. Operating Pressure Differential
2.5 bar

PCB Properties

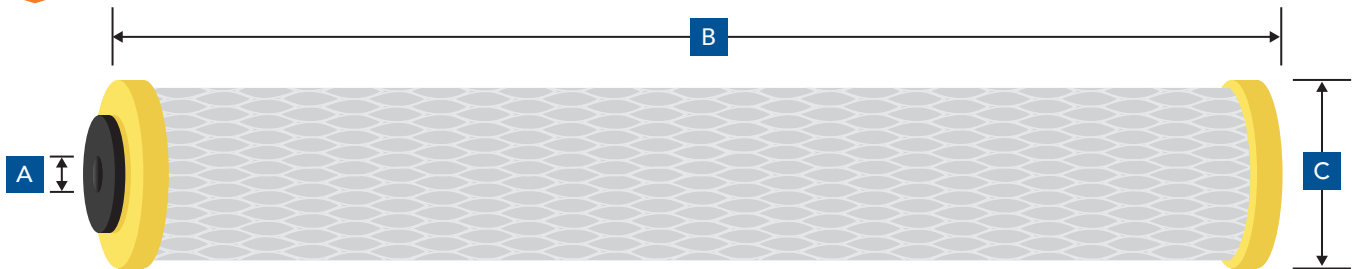
Length (")	Chloramine Reduction (L) *	Chlorine Reduction (L) @ 2mg/l **	Chlorine Reduction (L) @ 0.2mg/l ***	Pressure Drop (Bar) @	Flow Rate (LPM)
9¾	15,000	190,000	1,662,500	0.3	1.9
20	30,000	380,000	3,325,000	0.3	3.8
30	45,000	570,000	4,987,500	0.3	7.6
40	60,000	760,000	6,650,000	0.3	11.4
9¾BB	50,000	950,000	8,312,500	0.4	7.6
20BB	100,000	1,900,000	16,625,000	0.4	15.2

*Chloramine capacity using 3mg/l free available chlorine at 0.5mg/l breakthrough

**Chlorine capacity using 2mg/l free available chlorine at 0.5mg/l breakthrough

***Calculated chlorine capacity using 0.2mg/l free available chlorine at 0.05mg/l breakthrough

Dimensions & Packaging



Length (")	Dimensions (mm)		
	A	B	C
9¾	28	248	66
20	28	508	66
30	28	762	66
40	28	1016	66
9¾BB	28	248	115
20BB	28	508	115

Packaging	
Box Qty	Box Weight (kg)
15	7
15	14
9	13
9	17
4	6
4	12

Part Number

Code	Micron	Length
PCB	1	9¾, 20, 30, 40
		9¾BB, 20BB

e.g. PCB-1-30