



Manufactured  
in the UK



### Safelab Systems Products

- Filtration Fume Cupboards
- Ducted Fume Cupboards
- Extract Systems
- Cyclonic Scrubbers
- Horizontal Laminar Flow Cabinets
- Vertical Laminar Flow Cabinets
- Safety Cabinets
- Forensic Safety Cabinets
- Polypropylene Cabinets
- Glove Boxes
- Storage Cabinets

### Safelab Systems Service

- Maintenance Contracts
  - Airflow Testing
  - Ductwork Testing
  - Filter Testing
  - DOP Testing
- KI Discus Testing
  - Installation
  - Commissioning
- Replacement filter service

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## Carbon filters



Safelab manufacture a wide range of carbon filters for use in their filtration fume cupboards.

Safelab also make replacement filters for other manufacturer's fume cupboards including:

- |                   |                 |
|-------------------|-----------------|
| <b>AirScience</b> | <b>Astec</b>    |
| <b>Bigneat</b>    | <b>Erlab</b>    |
| <b>Fumair</b>     | <b>Labcaire</b> |
| <b>Monmouth</b>   | <b>Semper</b>   |

### Examples of carbon filter types and the substances they "neutralise":

Carbon name	Typical substances handled
C-100	The majority of aliphatic and aromatic hydrocarbons, solvents, odours, adhesives and paint/varnish fumes.
C-100E	Ethers
CI-200	Aldehydes (and general organics)
CI-300	Ammonia & amines
CI-350	Predominantly alkaline types of odours (urine, excreta)
CI-400	Acids
CI-410	Sulphur compounds
CI-420	Cyanides
CI-HG	Mercury vapours
CI-RI	Radioactive iodine & methyl iodine
CMS	For use in schools up to "A" Level

[www.safelab.co.uk](http://www.safelab.co.uk)

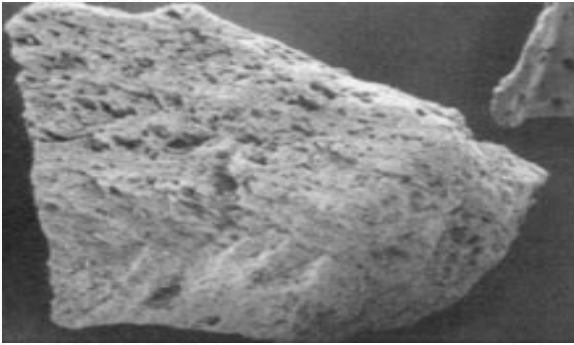


## What is activated carbon?



Activated carbon is characterised by a vast system of pores of molecular size within the carbon particles resulting in the formation of a material with extensive surface area. Commercially available activated carbons have surface areas from 400m<sup>2</sup>/g to in excess of 2000m<sup>2</sup>/g.

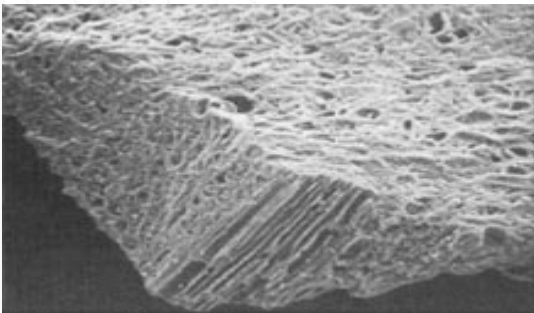
## Activated carbon selection?



Selection of the most appropriate activated carbon type is based either on known characteristics of the chemicals to be removed in the adsorption process or by a series of controlled laboratory tests. Powder carbons are mainly used in batch processes and removed by filtration after an appropriate contact time, whereas granular carbons are used in fixing or moving filter beds.

In the case of granular carbons, the smallest particle size is normally selected consistent with retention in the filter and acceptable flow resistance since this will provide the best adsorption kinetics. Activated carbon is sometimes chemically impregnated to enhance the performance by chemisorption when adsorption affinity for particular contaminants is too weak to be effective.

## How does it work?



The atoms of carbon comprising the large internal surface area of activated carbon present attractive forces outward from the surface. These forces, known as Van der Waals forces, attract the molecules of the surrounding gas or liquid. The combination of these attractive forces and those of molecules in the surrounding medium result in adsorption of molecules at the surface of the activated carbon.

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