



Filtraflo™ Carb

The next-generation polishing technology

WATER TECHNOLOGIES

Organic matter, micropollutants, or pesticides in water?

- Between pesticides, organic matter, liquid industrial pollutants, endocrine disruptors and other micropollutants, changing consumption habits keep adding more substances to the environment.

As a result, the quality of water resources is declining, with a potential impact on all potable water treatment processes.

For local water bodies, eliminating these substances is not only a regulatory requirement, but also a health and economic concern, given the overall cost of modernizing existing treatment lines or building new plants.

In drinking water production plants, as well as wastewater plants, the most common technical solution that has gradually taken hold is using the adsorption properties of powdered activated carbon.

Veolia Water Technologies, as an expert in water treatment solutions, has developed Filtraflo Carb™, a new upflow filter that uses recyclable activated carbon.

Filtraflo Carb is a polishing solution that requires no added chemicals, using adsorption to eliminate organic matter, pesticides, and other micropollutants in treated water while also filtering it.

“A next-generation process developed from the expertise of Veolia Water Technologies”



Operating principle

The Filtraflo Carb process consists of transferring raw water in a reactor, containing the filtering activated carbon bed and using an upflow stream. The water circulates upward at a speed which does not allow the bed fluidization but causes the activated carbon to gradually migrate towards the bottom of the reactor.

The filtered water is collected at the top of the works in troughs.

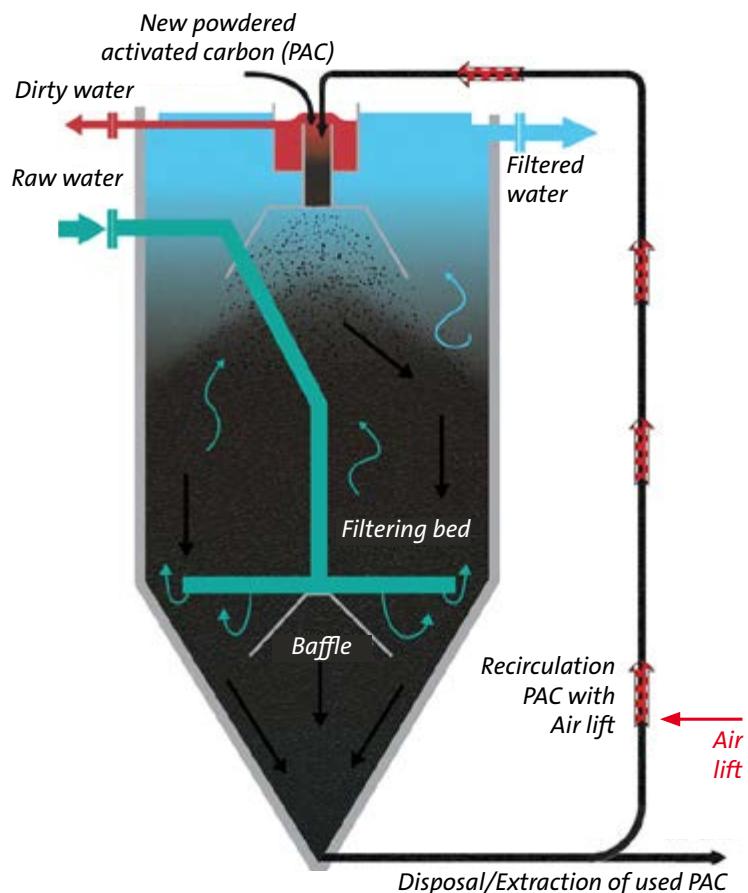
The activated carbon at the bottom of the filtering bed is continuously recirculated to the top via an air lift. Energy consumption is therefore very low.

This technique enables to permanently clean the recirculated activated carbon filled with suspended solids from the flocs and other impurities by some of the filtered water in a specific stack located towards the top of the works.

Having been recirculated and “washed,” the activated carbon is then ready to be reused in adsorbing micro-pollutants.

Extracted either continuously or at a set frequency, the activated carbon in the bottom of the bed is replaced by an equivalent quantity of new activated carbon at the top of the bed.

Once the activated carbon is removed from the works, it is sent to drain before ultimately going to a thermal regeneration unit.



Characteristics and references

The Filtraflo Carb is characterized by:

- Constant recirculation of activated carbon (AC) in the filter bed = stable performance
- Continuous filtration through a bed of AC
- A permanent movement of extracted CA from the bottom to the top, allowing a homogenisation of the filtering bed,
- A flexible design using concrete, metal or plastic (HDPE)
- Adaptability to variations in contaminants (due to the high concentrations of AC in the filter bed)

The micrograin innovation

One benefit of the Filtraflo Carb process is its use of activated carbon in microgranules. Once removed, the micrograin active carbon undergoes a simple draining and is then stored before being carried to a thermal regeneration unit. This means that the same material can be reused multiple times. Water treatment plants using Filtraflo Carb do not require any specific sludge treatment. This real alternative reduces operating costs by avoiding the spreading of activated carbon sludge and related costs (transport, spreading or landfilling).

Average size

from **300 µm**

to **800 µm**

from **900 mg/g**

Iodine value to **1,000 mg/g**

Among our references



Gahard (France): 40m³/hr



Eau du Morbihan (France):
Le Faouet Barregant plant
100 m³/hr (after Multiflo™ decanting)



Craon (France): 80 m³/hr
Direct treatment of well water

KEY FIGURES

Treated water quality results

- Turbidity: ≤ 1 NTU after treatment
- TOC: ≤ 2 mg/l after treatment

Sizing

- Activated carbon consumption: 3 to 30 g/m³ (depending on water quality and required performance)
- Filtration rate: 12 m/hr
- Contact time: 10 to 12 min

Filtraflo™ Carb

The simple and effective solution to remove micro-pollution

An exclusive Veolia Water Technologies patent, Filtraflo Carb combines two treatments in one: physical filtration of suspended solids with adsorption of organic matter using activated carbon.

This process allows for both renewing active carbon and washing the filtering media without shutting down the reactor, thereby ensuring continuous productivity and a constant level of treatment efficiency.

Compared with other processes which use a powdered activated carbon contact tank followed by a settling stage, Filtraflo Carb offers three advantages:

- 1 - it can be implemented in reduced size facilities,
- 2 - it uses adsorbent media than can be reactivated and reused,
- 3 - it doesn't need coagulant or flocculant chemicals.

It is not only low energy consuming but also very economical and simple to operate.

Compared with other processes using activated carbon in a fluidized bed, the Filtraflo Carb also offers the advantage of quick start-up and a genuine filtration capacity.

Filtraflo Carb is particularly well suited for:

- small to medium-size facilities
- upgrading of existing drinking water plants
- groundwater first treatment step with low-turbidity water
- surface water after flotation or settling
- wastewater tertiary polishing treatment

ADVANTAGES

- > Easy to operate
- > Compact and modular
- > Low-energy consumption
- > No activated carbon sludge to treat
- > Continuous washing: no need to stop production
- > No coagulants or polymers



