



OTV  VEOLIA

**Opacarb™ FL**  
**An environmentally-friendly  
process for treating micropollutants**

**WATER TECHNOLOGIES**



# Micropollutants: insidious pollution

A micropollutant is an undesirable substance detectable in the environment at very low concentrations of the order of micrograms or even nanograms per liter.

Whether of industrial, agricultural, urban or natural origin, micropollutants can, even at very low concentrations, cause negative effects on living organisms due to their toxicity, persistence and bioaccumulation.

From pesticides to organic matter, endocrine disruptors and other micropollutants, the diversity of substances present in the environment continues to expand as human activities continue to evolve, having a major impact on the quality of water resources.

For local authorities and manufacturers, the treatment of these substances is a regulatory, health and economic challenge, given the overall cost of upgrading processes or building new plants. Although regulations do not yet impose any standards, we propose solutions to deal with this problem.

Activated carbon (AC) adsorption has gradually become one of the main technical solutions used in drinking water production plants and at the outlet of wastewater treatment plants.

An expert in water treatment solutions, Veolia Water Technologies has developed **Opacarb™ FL**, a new fluidized-bed reactor using regenerable activated carbon.

In the absence of a suitable treatment system, pollution caused by micropollutants not only impacts the quality of water intended for human consumption, but also wastewater treatment plants, rainwater discharges and natural environments, such as rivers, lakes and coastal areas.







# Opacarb FL

## An economical, natural solution that combats micropollutants and produces high-quality water

**Opacarb FL**, an exclusive Veolia Water Technologies patent, traps and treats pesticides, micropollutants and their metabolites in a fluidized-bed reactor with micrograin activated carbon.

The continuous renewal of the carbon ensures a consistently high level of efficiency.

It offers many advantages over other processes based on a contact tank followed by lamellar settling.

### Key figures

Among the micropollutants quantified in groundwater,

**80%** come from everyday products (medicines, plasticizers, PAHs, solvents, detergents, etc.).

**47%** of French people consider pesticides to be the main threat to rivers in 2018.

**21%** of the 1,372 aquatic species assessed in mainland France and overseas are extinct or threatened by extinction in June 2020.

**+ 9%** is the growth in purchases of plant protection products between 2015 and 2018.

*Source: Water and aquatic environments - Key figures - 2020 Edition - 3*

### Benefits

- > Compact and modular
- > Simple to use
- > Implementation on facilities of all sizes
- > Low energy consumption
- > No activated carbon sludge
- > No addition of coagulants, flocculants or polymers



### Opacarb FL is particularly suitable for the:

- treatment of pesticides and ESA, OXA and NOA metabolites and metachlors present in water intended for human consumption
- treatment of micropollutants in wastewater leaving a wastewater treatment plant

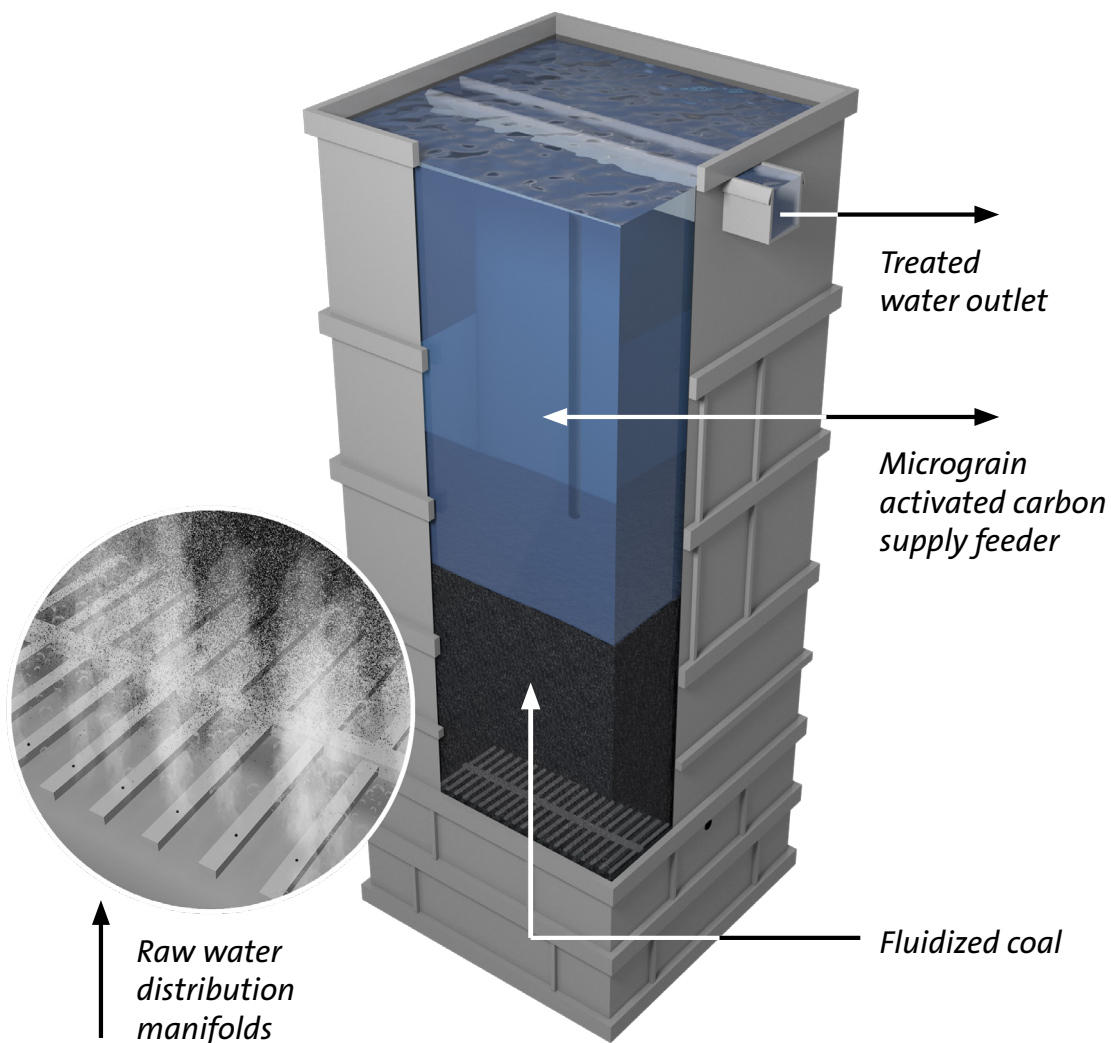


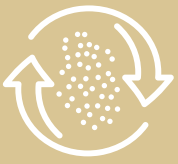
## Operating principle

With **Opacarb FL**, the water to be treated flows upwards through a reactor containing a bed of micro-grained activated carbon, at a speed that ensures fluidization of the carbon bed.

Optimizing contact time by fluidizing the activated carbon ensures minimum footprint. The water to be treated is distributed within the bed by a manifold that ensures optimum flow distribution through the media and controlled expansion of the activated carbon. The treated water is collected in the upper part of the structure by overflow slats.

Thanks to the presence of a significant mass of activated carbon in the continuously renewed reactor, **Opacarb FL** ensures constant water quality. This addition of new carbon brings operating flexibility, as it can be adjusted according to the flow rate or quality of the water to be treated. Activated carbon is regularly extracted and sent for dewatering before being sent to a thermal regeneration unit.





# Features and references

## An adsorbent material that can be reactivated and reused

### Micro-grained activated carbon, the key to success:

Microcarb results from the agglomeration of activated carbon particles. This characteristic enables it to combine the advantages of powdered and granular activated carbon and thus:

- offer a high surface area for adsorption performance
- dosing proportional to flow rate and pollutant concentration
- guarantee a high level of safety by eliminating the ATEX risk posed by powdered activated carbon
- external carbon regeneration to minimize its carbon footprint

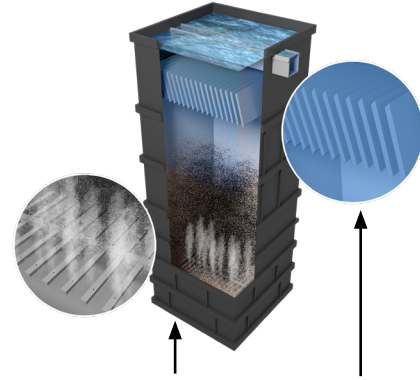
Average size  
from **300 micrometers**  
to **800 micrometers**



**900 mg/g\***  
Iodine index to **1000 mg/g\***

\* milligrams per gram

## Opacarb FL: an evolutionary process



An online ozone injection to boost carbon efficiency and improve micropollutant removal

Addition of slats to maximize hydraulic distribution

## Our references include

- Gahard: 70 cubic meter per hour (m<sup>3</sup>/h)
- Negrepelisse: 350 m<sup>3</sup>/h
- Nort sur Erdre: 600 m<sup>3</sup>/h
- St Pierre de la Réunion: 1,300 m<sup>3</sup>/h
- Tournefeuille: 2,000 m<sup>3</sup>/h
- Clairfont: 4600 m<sup>3</sup>/h
- Lausanne: 5,040 m<sup>3</sup>/h
- Pech David: 6,600 m<sup>3</sup>/h

## The Opacarb FL range

Reactor type	XS	S	M	L
Flow range (m <sup>3</sup> /h)	17-24	42-60	85-120	125-180
Reactor surface area (m <sup>2</sup> )	0.8	2	4	6
Reactor dimension (m x m x m)	diameter 1 x ht 6	1 x 2 x ht 6	2 x 2 x ht 6	3 x 2 x ht 6

# Resourcing the world

OTV

L'Aquarène • 1 place Montgolfier • 94417 Saint-Maurice Cedex • France

tél. 01 45 11 55 55 - fax 01 45 11 55 50

 @VeoliaWaterTech •  Veolia Water Technologies

[www.veoliawatertechnologies.com](http://www.veoliawatertechnologies.com)