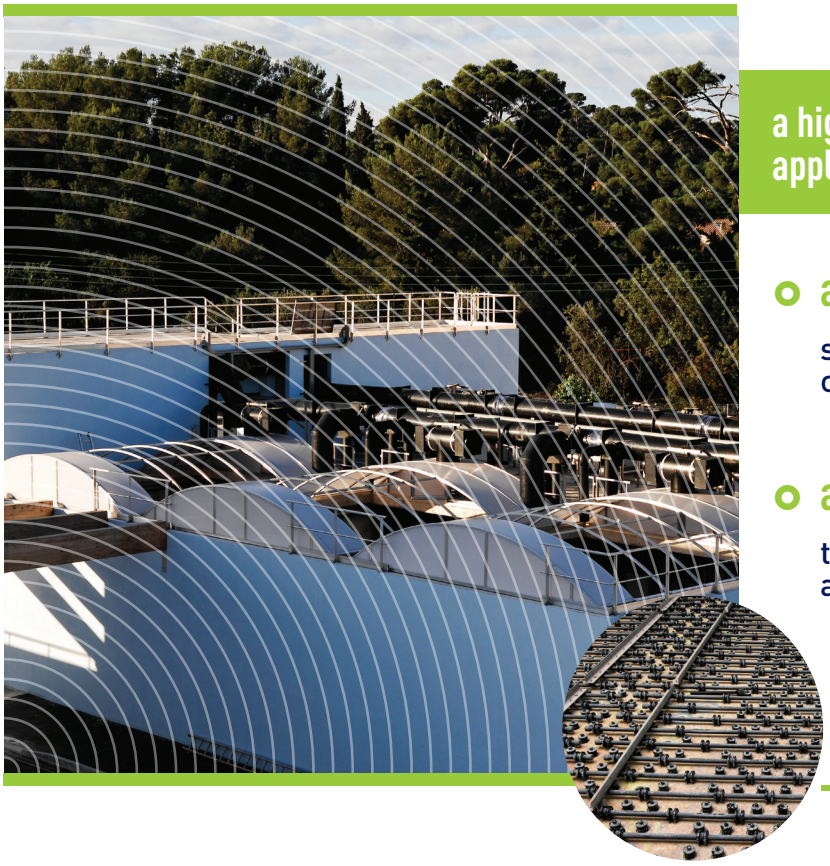
Biofor®

biofiltration of urban and industrial wastewater

urban wastewater



a high-performance process with multiple applications and advantages

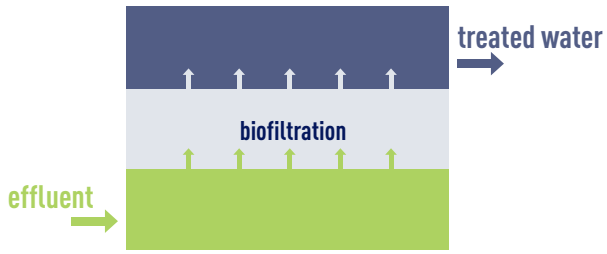
a competitive process

suitable for all types of effluents to comply with environmental standards

a compact and modular solution

to respond to the constraints of space and architectural integration

Biofor®= 2 operations in one structure filtration and intensive biological treatment



SUEZ: **recognised expertise** in biofiltration with more than 1,000 installed units world-wide

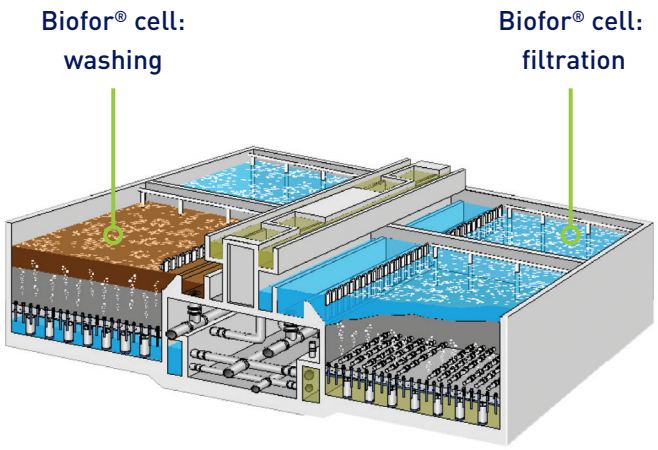
Biofor®: the biofiltration by SUEZ

Biofiltration was developed by SUEZ in the 1980s as part of the Biofor® process, which is an upflow biological reactor. The Biolite, which is the filtering material, is placed in the reactor and serves as a support for micro-organisms. Feedback has allowed a selection of varied and optimal sort of Biolite and aeration system, and has led to develop two main families of Biofor®: "aerated" and "non-aerated" Biofor®.

suez

Biofor® technology . . .

The effluent to be treated is continuously fed into a biological reactor called a "biofilter", passing through filtering materials that retain the suspended solids.Carbon and / or nitrogen pollution is eliminated thanks to the development of natural bacteria into a fixed biofilm (purifying biomass) on a mineral support that is also natural. A filtering material washing is regularly activated to restore the filtering and purifying capacity of the biofilter.



the Biofor® treatment lines in urban and industrial wastewater

effluent → Biofor® C → treated water

effluent → Biofor® C + N → treated water

effluent → Biofor® C → Biofor® N → treated water

effluent → Biofor® préDN → Biofor® C → Biofor® N → Biofor® postDN → treated water

a Biofor® range to meet even the most demanding discharge constraints

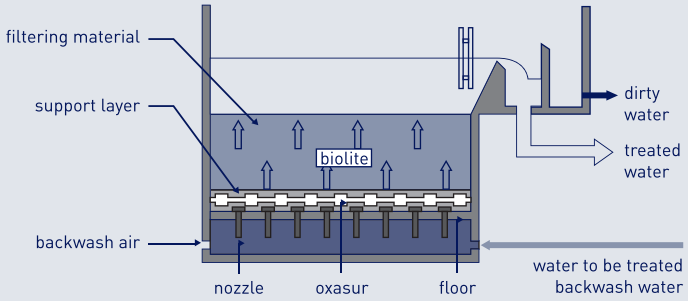
Biofor® type		application	parameters
aerated Biofor®	Biofor® C	carbon (BOD)	water velocity= 3-16 $m^3.m^{-2}.h^{-1}$
			loading applied= 3-6 kg $BOD.m^{-3}.d^{-1}$
	Biofor® CN	carbon and nitrification	water velocity= 3-12 $m^3.m^{-2}.h^{-1}$
			loading applied= 1.2^{-2} kg $BOD.m^{-3}.d^{-1}$
			nitrified loading= 0.4-0.6 kg $N\text{-}NH_4.m^{-3}.d^{-1}$
	Biofor® N	tertiary nitrification	water velocity= 3-12 $m^3.m^{-2}.h^{-1}$
			nitrified loading= 1.2-1.6 kg $N\text{-}NH_4.m^{-3}.d^{-1}$
non aerated Biofor®	Biofor® pre-DN	upstream denitrification	water velocity= 10-30 $m^3.m^{-2}.h^{-1}$
			denitrified loading= 1.0-1.5 kg $N\text{-}NO_3.m^{-3}.d^{-1}$
	Biofor® post-DN	downstream denitrification (methanol added)	water velocity= 10-35 $m^3.m^{-2}.h^{-1}$
			denitrified loading= 3.5-5 kg $N\text{-}NO_3.m^{-3}.d^{-1}$

Biofor® allows . . .

an advanced treatment of suspended solids (SS) and carbon and / or nitrogen pollution with no odour impact

saves space thanks to its modular design and cuts out of the clarification stage

simplified and reduced construction with ranges of pre-sized units



. . . what it can do for you

a high-performance treatment complying with regulations for all types of effluents

- low-temperature effluent
- effluent with wide variation in flow and / or load
- diluted effluent
- industrial effluent such as oil, paper pulp, etc.

no environmental constraints

- very little or no odour
- no noise
- weak footprint (compactness)

easy to operate

- due to automated functioning

easy and low-cost coverage

- due to its compactness

easy on-site implantation

- modular aspect

a few references . . .

1,150 Biofor® in process throughout the world

73,800 m² of filtering media

petrochina (refinery)
Chengdu (China) - 60,000 m³/d

Malta - 60,000 m³/d

Xiamen (China) - 300,000 m³/d

El Segundo (California, USA) - 236,000 m³/d

Joong Ang Pusan (Korea) - 111,000 m³/d

Louis Fargues (Bordeaux, France) - 276,500 m³/d (447,000 PE)

Amphora (Toulon, France) - 86,400 m³/d (100,000 PE)

Grenoble Alpes Métropole (France) - 400,000 PE

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Conception & Realisation: O. Barbier (SUEZ) - Photos credits: SUEZ