

AyraVita™



Air depollution & odor control
by **biofiltration** for industry
and municipalities



John Cockerill Air & Gas



AyraVita™: biofiltration, an ecological and economical solution for air and odor treatment

A sustainable and ecological approach

Effective in treating and reducing emissions of volatile organic compounds (VOCs), odorous gases and other gaseous pollutants, biofiltration is a sustainable, environmentally-friendly solution, enabling compliance with the most stringent standards and regulations.

AyraVita™ offers the versatility to reduce emissions of pollutants from a wide range of (industrial) origins (agri-food, chemical, pharmaceutical, automotive...), or in municipal applications (odor treatment from wastewater treatment plants, composting facilities or waste treatment sites).



Reduced greenhouse gas emissions: biofiltration produces little waste, uses no chemical reagents and therefore offers significant savings and decarbonization potential, helping to reduce greenhouse gas emissions.

AyraVita™: a proven solution, natural & economical

Biofiltration is based on a simple principle: the pollutants responsible for odours are used as a source of carbon and energy by aerobic micro-organisms - such as certain bacteria - and are broken down into harmless residual products such as carbon dioxide, water, sulphate, nitrate, etc. The polluted air passes through a biomedia (substrate) where these micro-organisms attach and grow, forming a reactive biofilm.

Although biofiltration is a simple principle, it is based on a “living” culture.

Its effectiveness depends on good control of bio-chemical parameters, the choice of a suitable substrate, the consistency of the flows to be treated (to be checked regularly) and the implementation of pre-treatment measures, all of which are taken into account in the design of a John Cockerill **AyraVita™** solution.



Deodorization of a WWTP buffer tank

AyraVita™ offers many benefits



Effective treatment of various pollutants: volatile organic compounds (VOCs), odors, nitrogen compounds, H₂S, etc.



Low operating costs & simplified maintenance: low energy consumption, no need for chemical reagents and generally produces no harmful residues, thus promoting sustainable waste management.



100% biological process: reduced greenhouse gas emissions associated with its operation.



Adaptability & versatility: in a variety of sectors such as the food industry, paper production, wastewater treatment, etc.



Wide choice of high-quality, carefully selected media: organic or mineral.



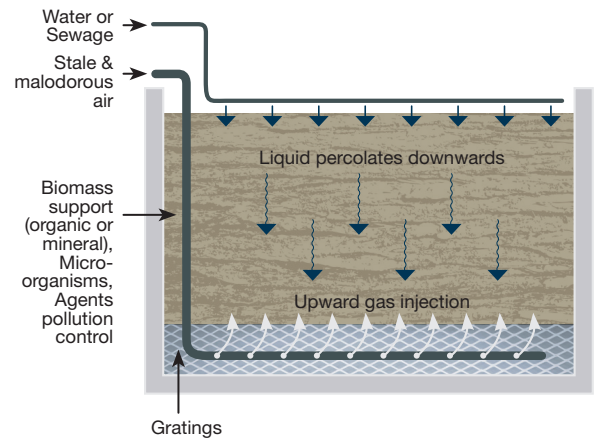
Adaptable and varied design to suit site requirements and constraints: cylindrical or rectangular, plastic or concrete.



4.0 facility management through connected equipment: **AyraSmart™** Steering, an innovative continuous remote monitoring system for data collection and analysis.

AyraVita™: operating principle

Specifications	Biofilter AyraVita™	Biotrickling filter AyraVita™
Principle	Humidifying incoming air by humidifier	Filter bed watering by trickling in a closed circuit
Media support	Organic	Mineral
Compact design	+	++ 2x more compact (substrate can be stacked up to 4 meters high)
Nutrient intake	No: the media contains its own microbial flora	Yes: nitrogen and phosphate nutrients
Water quality	Borehole water / Drinking water	Water from WWTP
Watering	Sequential	Continuous
Replacement of biomass	3 to 5 years	5 to 10 years
Application	High efficiency on residual output	Heavy loads



A diversified range to meet your needs

Sustainable & recyclable design

Cylindrical or rectangular, manufactured in the workshop or assembled on site, John Cockerill has developed a range of AyraVita™ biofilters to adapt to your specific operating conditions, flow rate, pollutants and installation constraints.

AyraVita™ MOD
Modular Plastic



AyraVita™ PAN
Modular Panels

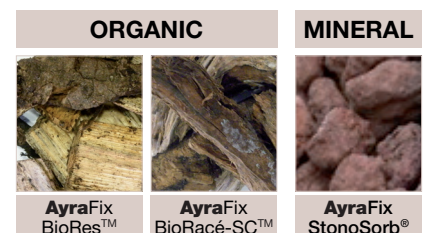


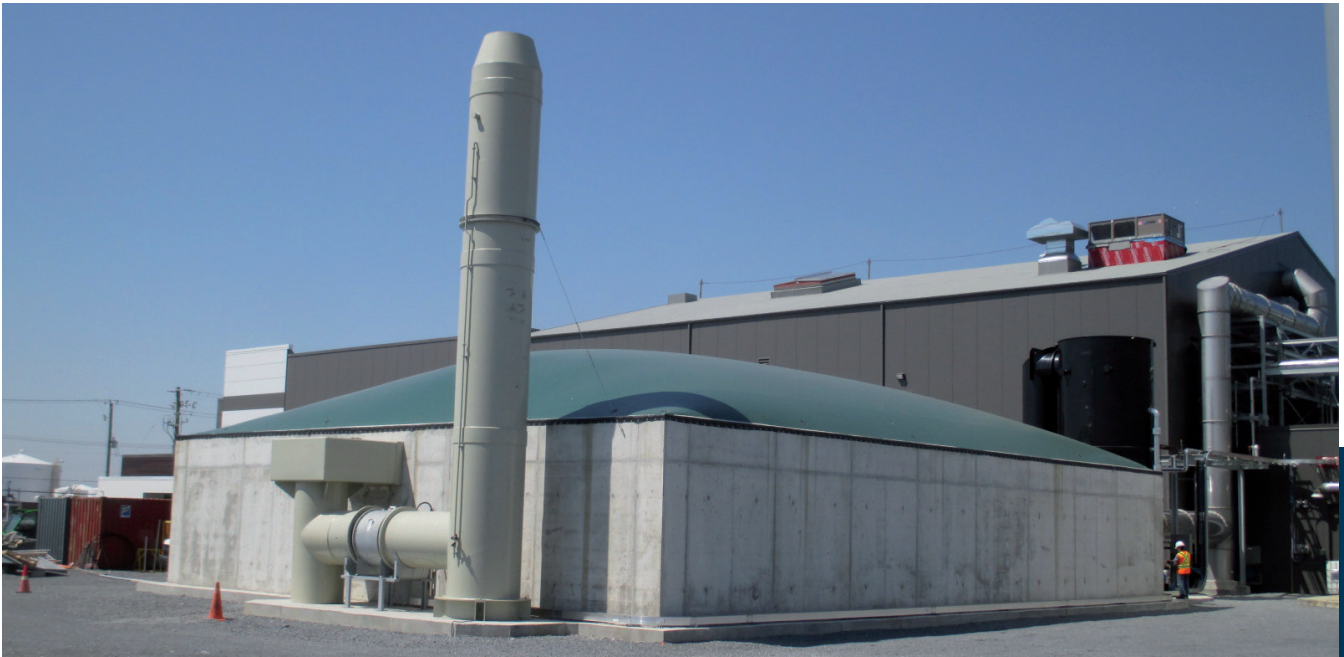
AyraVita™ GC
Concrete Construction



High-quality biomass

Substrate selection in a biofilter is crucial to fix biomass and ensure efficient degradation of pollutants, with operational stability. With over 30 years' experience in air pollution control and odor treatment, John Cockerill has devoted several years of R&D to analyze and select the best organic, synthetic and mineral substrates and define their implementation and operating conditions. These substrates benefit from longer service life, reduced pressure drop and optimized performance.





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John Cockerill Environment solutions support the ecological transition and circular economy

Because protecting natural resources and developing green energy production is a vital concern for us and future generations, John Cockerill Environment is committed to contributing its long-established historical experience, solid technological expertise, and innovative boldness to water, air and waste treatment systems.

Its Air & Gas Business Line offers adapted and effective solutions for the treatment of corrosive, harmful and odorous gaseous effluents, as well as the recovery of valuable solvents and energy.

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