

OSMORIA®

By  SOLMAX

Aquatextiles for responsible stormwater management



Rainwater management made easy

Our advanced aquatextiles bring a transformative approach to stormwater management, offering high-performance, sustainable treatment to significantly reduce hydrocarbon pollution at the source.

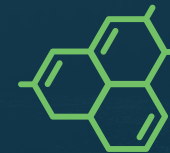
OSMORIA® solutions seamlessly integrate into all infiltration-based stormwater management systems, enhancing water quality as it infiltrates into the ground. By effectively preventing soil and groundwater contamination, **OSMORIA** sets a new benchmark in environmental protection and sustainable stormwater management.

Did you know?



200L
of oil and grease leaks

collected annually from
a 400-space car park



1L
of hydrocarbons

is contributed annually by
runoff over an area of 1,000 m²



1,000 m²
of roadway

generates 1 liter of
hydrocarbons per year

OSMORIA aquatextiles: Leading the way in sustainable stormwater management

Solmax has developed **OSMORIA** depolluting aquatextiles—an advanced solution that targets hydrocarbon pollution in stormwater management. These aquatextiles provide a sustainable, economical, and self-sustaining approach to protecting soils and supporting ecosystem resilience amid climate change, ensuring a healthier quality of life for future generations.

Human impact and the disruption of natural water cycles

Surface sealing from human activities has significantly altered the natural water cycle. Managing rainwater at its source aims to restore this balance by promoting infiltration close to where the rain falls. However, stormwater often carries pollutants from

surfaces—such as hydrocarbons and Polycyclic Aromatic Hydrocarbons (PAHs)—introducing these contaminants into surrounding ecosystems.

The soil's finite filtration capacity

While soil has a natural ability to filter water, this capacity is not limitless. Its ability to bind pollutants and regenerate depends on factors like soil composition, hydration, and the type and concentration of pollutants it receives. When pollution loads exceed these limits, soils become saturated, biodiversity declines, and critical functions—such as water regulation, pollutant breakdown, and soil fertility—are compromised.

Soil health and public health: A critical connection

The persistence of PAH pollution in soils and waterways has become a significant public health concern due to its carcinogenic effects, emphasizing the urgent need to protect soil and its biodiversity.

Safeguarding ecosystems with responsible water management

Stormwater and soil pollution destabilize ecosystems, making effective water management crucial to mitigate these impacts.



Water pollution by PAHs: what is the impact?



10/16

PAHs studied are
found in runoff water



60%

PAHs found in runoff are already classified
as carcinogenic by WHO/IARC



PAH

is the main cause
of degrading river quality

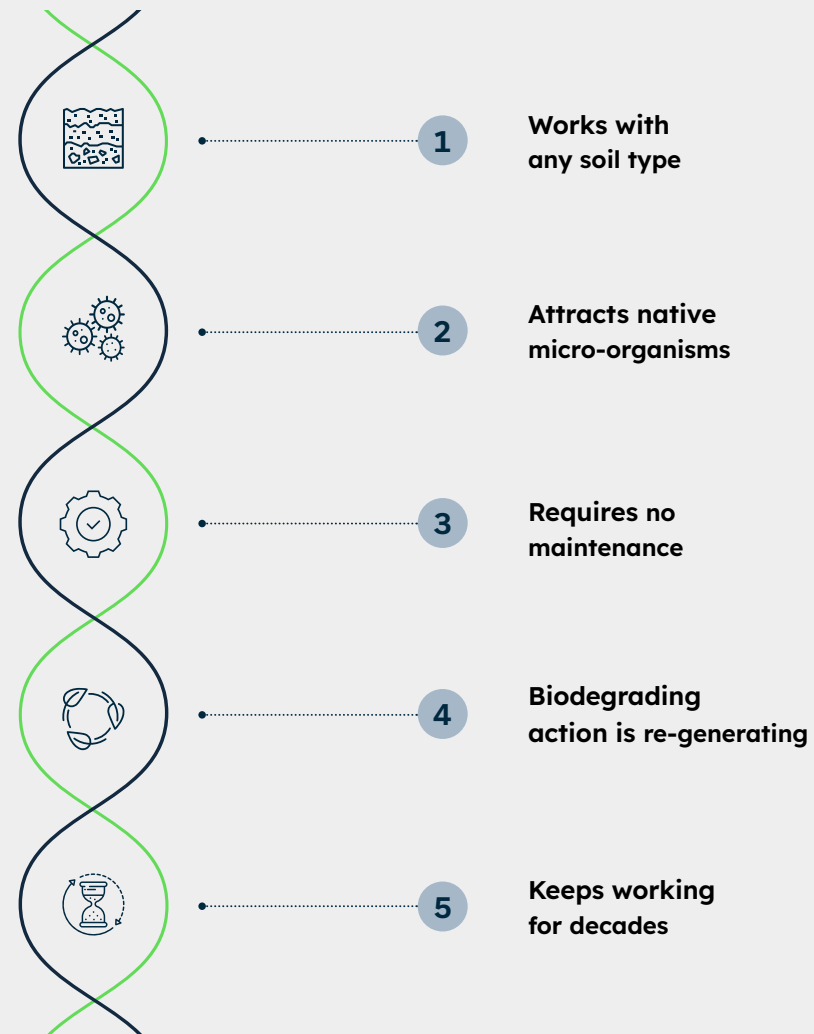
Enhancing the quality of infiltrated water

Drawing inspiration from the natural ability of certain soils to bind and biodegrade organic micropollutants, **OSMORIA** depolluting aquatextiles have been engineered to effectively treat hydrocarbon loads in rainwater, regardless of flow patterns or conditions.

These aquatextiles seamlessly integrate into any infiltration structure, ensuring that 100% of the rainwater passing through them is treated—even during heavy rainfall events.

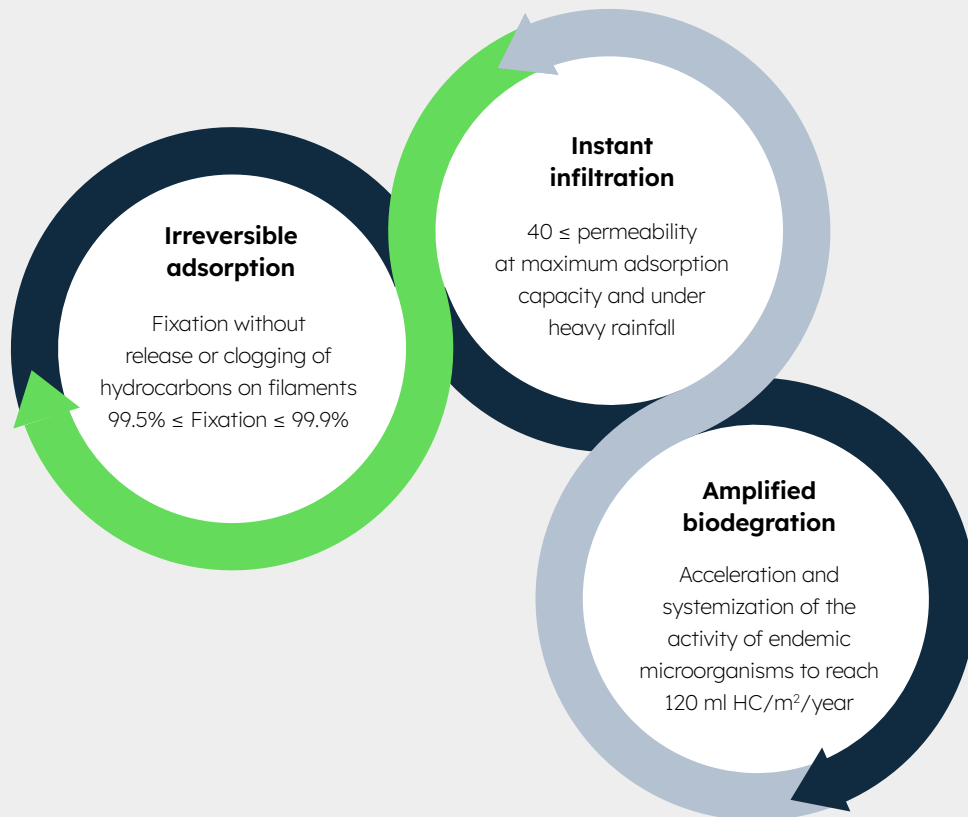
A biomimicry-inspired solution

OSMORIA aquatextiles are inspired by nature and optimize the natural phenomenon of fixation and biodegradation.



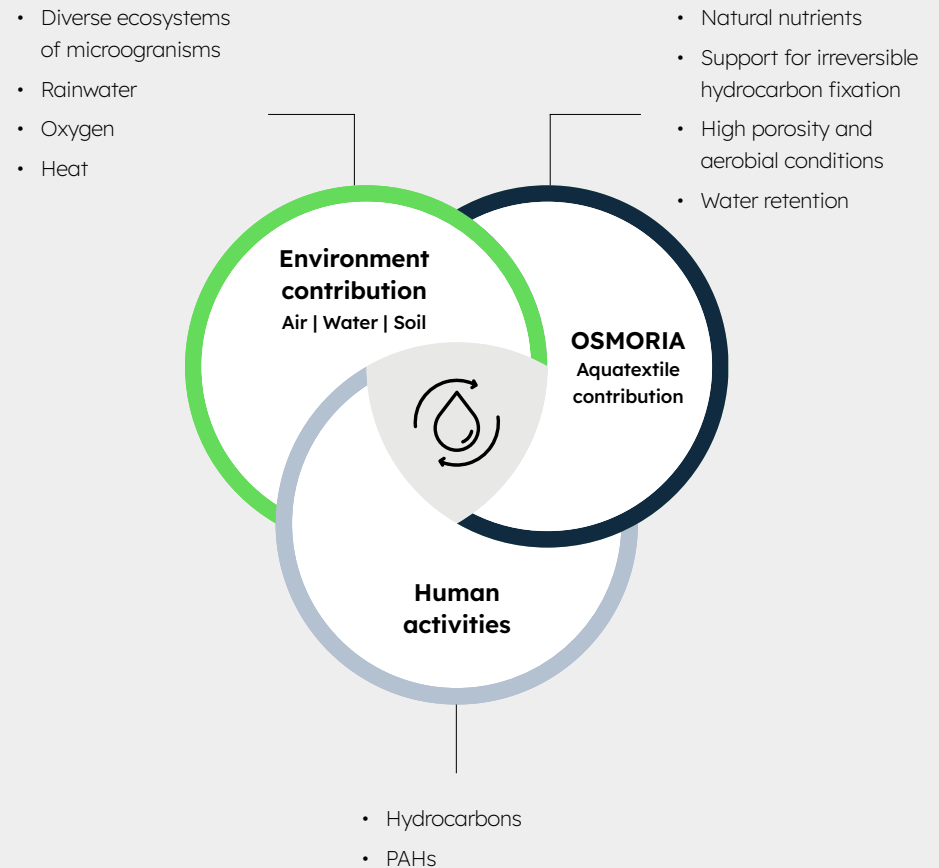
Purifying rainwater during infiltration

OSMORIA depolluting aquatextiles are advanced technical textiles, engineered to systematically capture and biodegrade hydrocarbons and PAHs, ensuring long-term protection for water and soil quality, biodiversity, and public health.



An autonomous, self-renewing system

Designed to be maintenance-free and durable, **OSMORIA** aquatextiles provide an enhanced and sustained biodegradation process. The textile's matrix releases essential natural minerals that attract and support native soil microorganisms, such as bacteria and fungi. These microorganisms multiply and accelerate pollutant breakdown, delivering consistent performance across diverse environmental conditions.



The advanced aquatextile for responsible stormwater management

Supporting source-based stormwater management solutions, **OSMORIA** enhances the surrounding environment by promoting features like cool islands and integrated landscaping.

- Attracts and supports native microorganisms: Actively fosters local microbial populations for effective biodegradation.
- Self-sustaining biodegradation: The biodegradation process is naturally regenerative.
- Maintenance-free, long-lasting performance: Engineered for durability without upkeep.
- Cost-effective installation and operation: Economical and efficient, **OSMORIA** offers reliable, long-term stormwater management.

OSMORIA Geoclean



Designed for open-air and buried infiltration structures, **OSMORIA Geoclean** comes in three variants – Origin, Crystal, and Pure – allowing engineers to choose the appropriate level of filtration based on the expected pollution load.

Key advantages

- The **OSMORIA Geoclean** range – Origin, Crystal, and Pure – offers increasing levels of hydrocarbon fixation and biodegradation to match the site conditions.
- Options designed for large widths (3 m and 6 m).
- Exceptional performance: it has demonstrated a more than 99.9% retention rate for hydrocarbons, with a residual concentration as low as 0.7 mg/L.

OSMORIA Indigreen



Specifically crafted for permeable car parks, **OSMORIA Indigreen** ensures that infiltrated polluted rainwater from vehicle-heavy zones is effectively managed and treated.

Key advantages

- Tailored performance and packaging for parking spaces.
- Optimized mechanical properties with tensile strength > 20 kN/m, eliminating the need for a separation geotextile (Class 6).
- Ideal for de-impermeabilization projects in compliance with environmental laws.

Proven performance in hydrocarbon fixation and biodegradation

OSMORIA Geoclean has undergone stringent testing by CEREMA, a respected French laboratory known for its rigorous standards. The results underscore **OSMORIA**'s outstanding capabilities:

Hydrocarbon fixation (C₁₀-C₄₀)

Aquatextiles demonstrate over 99.9% effectiveness in binding and/or biodegrading hydrocarbons, with residual concentrations between 0.03 mg/L and 2 mg/L downstream a large scale lysimeter of an open-cast infiltration structure, based on structural variations.

PAH fixation

Achieving a 77%* fixation rate for benzo(a)pyrene—a known carcinogenic PAH—**OSMORIA** Geoclean Crystal also significantly reduces levels of Benzo(b)fluoranthene (BbF) and Benzo(k)fluoranthene (BkF) below Environmental Quality Standards - Maximum Allowable Concentrations (EQS-MCA).

Accelerated biodegradation

OSMORIA aquatextiles support an efficient biodegradation process, achieving rates much higher than the hydrocarbon load on the aquatextile. This enhancement enables infiltration systems to manage higher pollution levels compared to natural soil alone.

These performance metrics highlight OSMORIA's dependability, establishing it as a preferred solution for engineers dedicated to developing effective Sustainable Drainage Systems (SuDS).

***OSMORIA** Geoclean Crystal

Results of a study carried out in 2021-2022 by Cerema and Leesu on the **OSMORIA** Geoclean range.

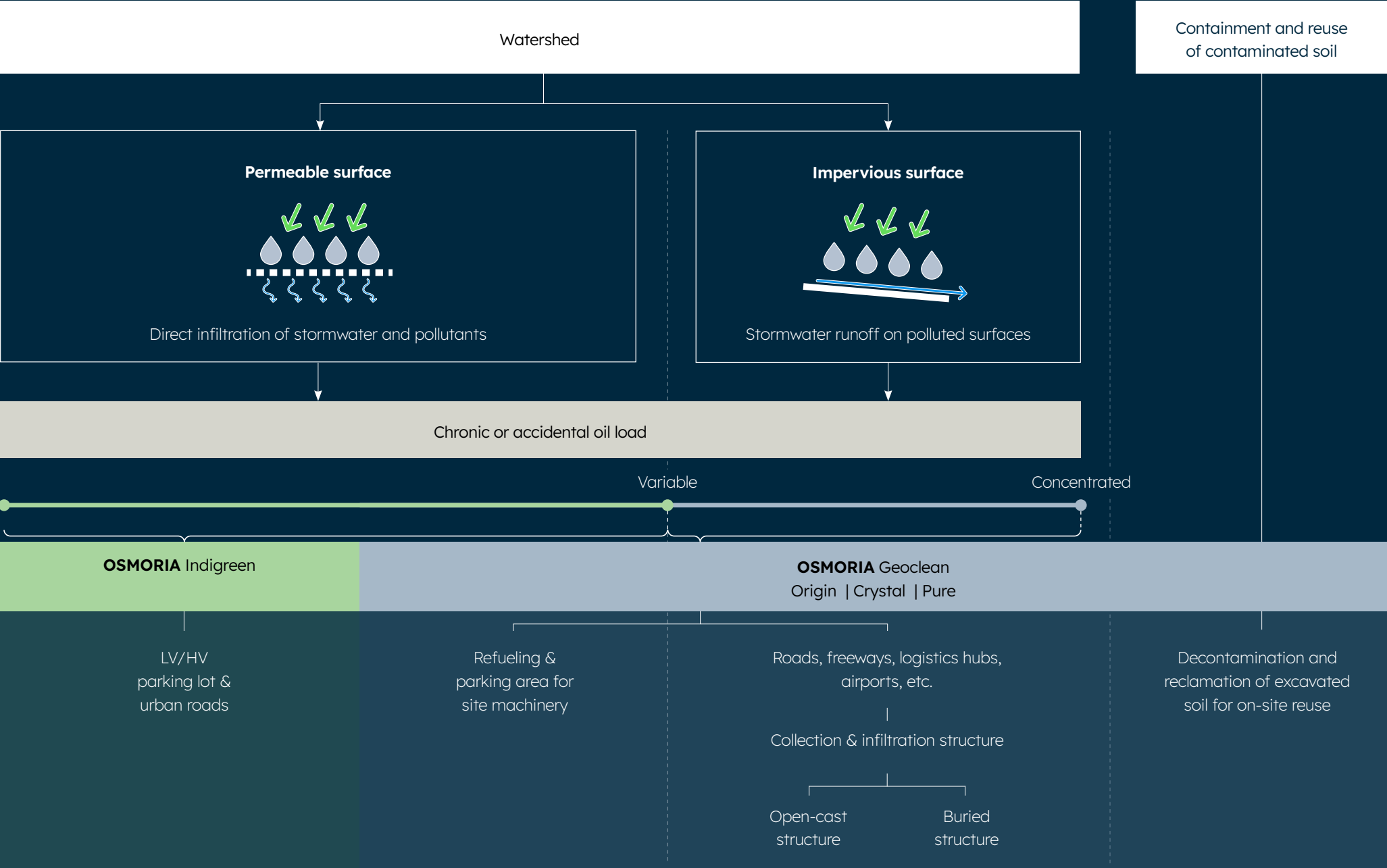




Key benefits

- Restoring the water cycle
- Clean infiltration
- Preserving biodiversity
- Prevent soil pollution and remediation
- Improving quality of life

Aquatextiles with performance to suit every application



About Solmax

Solmax is a world leader in sustainable construction solutions, for civil and environmental infrastructure. Its pioneering products separate, contain, filter, drain and reinforce essential applications in a more sustainable way – making the world a better place. The company was founded in 1981, and has grown through the acquisition of GSE, TenCate Geosynthetics, TenCate AquaVia, and Propex. It is now the largest geosynthetics company in the world, empowered by more than 2,000 talented people. Solmax is headquartered in Quebec, Canada, with subsidiaries and operations across the globe.

About aquatextiles

The Solmax Aquatextiles team is dedicated to stormwater management to foster a sustainable world for future generations. They focus on restoring water to its rightful place in the environment by offering aquatextiles that can be installed in infiltration structures to clean up stormwater, thereby preserving water quality and protecting soil biodiversity.

