

Infiltrate Clean  
Runoff Water  
**Naturally!**

 TENCATE  
**GeoClean<sup>®</sup>**

# PROTECTING

## People and the environment



TenCate Geosynthetics  
creates solutions  
to **protect natural resources**  
in order to **build**  
**a more sustainable world.**

Cleaning runoff water,  
**naturally !**

 **TENCATE**  
**GeoClean**<sup>®</sup>



# PROTECT natural resources

and build a sustainable world for the future generations



For a sustainable and a pleasant life on earth, we must protect our environment in general, and the water resource in particular, both in quantity and quality.

The design of infrastructures should encourage the local infiltration of rainfall, to better refill aquifers and avoid the installation of expensive collecting system, sometimes also under-designed considering the trend of climatic events.

In addition, runoff water is polluted and must be treated before infiltration into the soil to secure aquifer.

The company's commitment covers 5 out of 17 goals **of the UN's 2030 agenda for sustainable development campaign:**

We believe it is crucial to clean runoff water locally and naturally



# TODAY'S CHALLENGES

## Infiltrate clean water locally



### A RARE AND FRAGILE NATURAL RESOURCE

Only 0.5% of the total global water can be used for human needs.

### INCREASING POPULATION AND URBAN AREAS

European Population

- increased by 21% in 57 years<sup>(1)</sup>
- among which 72% live in urban areas



+ 21%  
in 57 years



72%  
in urban areas

Urbanization produces high volumes of runoff water:

- Impermeable surfaces over 75 - 100% of the soils
- 55% of runoff water in cities and 10 % only in the countryside



75% à 100%  
of the impermeable surfaces in cities

### HUMAN ACTIVITIES AND HYDROCARBON POLLUTION

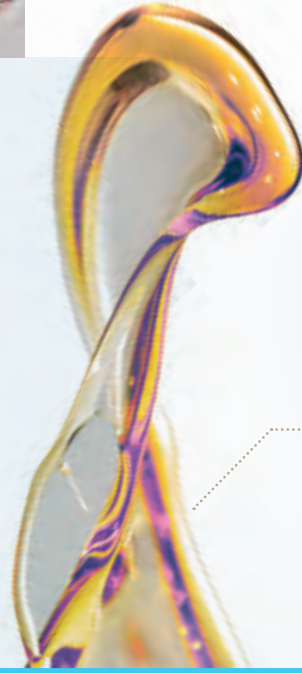
The conjunction of an extensive use of the water resource and the resulting pollution shall be managed in a way that no environmental degradation occurs, but at least the water quality is preserved and even restored.

Today, very expensive depolluting technologies are currently required to keep the quality of the natural fresh water high enough for drinking.



**The average artificial impervious surface in Europe increased by 38% during the last 25 years:**

- Roads, car parks, railways are polluted with leaks of oil and grease;
- The average hydrocarbon deposits on a main road pavement is about 1 to 5 kg/km/day



**ONE LITRE OF OIL CAN CONTAMINATE:**

- 1,000,000 litres of natural water
- 1 m<sup>3</sup> of soil
- 1,000,000 m<sup>2</sup> of water



For 25 years  
**+38%** <sup>(1)</sup>  
in total



**55%** <sup>(1)</sup>  
runoff in cities



up to  
**5kg**  
of Hydrocarbons  
per km and per day



**LARGE RUNOFF VOLUMES**

The higher occurrence of heavy rains on larger impervious areas produces big volumes of runoff water which increases the risk of urban floods.

It is essential to design solutions to encourage **the local infiltration of unpolluted runoff water** in the deeper soil layers and aquifers.

(1) UE-28



Finally, the treatment process for runoff water from hydrocarbons should be **SAFE, ECOLOGICAL and SUSTAINABLE.**

# BUILD

## a brighter tomorrow

### thanks to TenCate GeoClean®

TenCate GeoClean® is an oil-biodegrading aquatextile. Its aim is to eliminate hydrocarbons naturally from the runoff water that infiltrates the ground.

It ensures 4 complementary actions:

#### 1 CLEANS WATER BY FIXING THE OIL TO ITS FIBRE STRUCTURE

- The oleophilic filaments of TenCate GeoClean® have a high **adsorption capacity: 99.9%** oil infiltration retention
- Maximum **Residual Content** of hydrocarbon in water: **< 1 mg/l**
- Performance easily **superior to the best class of hydrocarbon separators** in good operating condition: < 5 mg/l (Class 1 Separators according to EN858-1:2002)

#### 2 INFILTRATES WATER ACROSS THE ENTIRE SURFACE

- TenCate GeoClean® is **very permeable**
- It can infiltrate **extreme rain instantly**, even higher than 100-year rainfalls, without retaining water at the surface of the structure.
- Permeability of TenCate GeoClean® under 5 cm of water: > 10 mm/s higher than a torrential rain of 60 mm in 30 min (0.03 mm/s).

#### 3 SYSTEMATICALLY BIODEGRADES HYDROCARBONS RETAINED

...by providing an optimal biotope to host a sustainable purifying ecosystem:

- Fine fibre structure with a **high contact area** to harbor micro-organisms
- Slow release of a **natural growth activator** which makes the micro-organisms grow quickly and **accelerates the biodegradation** of hydrocarbons
- **Reserve** of oxygen and water
- **Rate of degradation:** around 100 g/m<sup>2</sup>/year\*, or 10 times the average quantity of oil discharged onto a carpark (10 g/m<sup>2</sup>/year).

#### 4 ADDITIONAL OIL STORAGE CAPACITY

...in the event of localized, accidental spills

- In the white upper layer

\*Conditions for biodegradation without factors limiting food or the environment.





## TENCATE GEOCLEAN®

A complete range that adapts to the needs and applications

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### Clean water as soon as the aquatextile is installed

- Very effective elimination of hydrocarbons in water (< 1 ppm residual)
- Retention in diffuse and accidental conditions (> 99.9 %)



## AQUATEXTILE

A textile for managing the quality of water in the soil.



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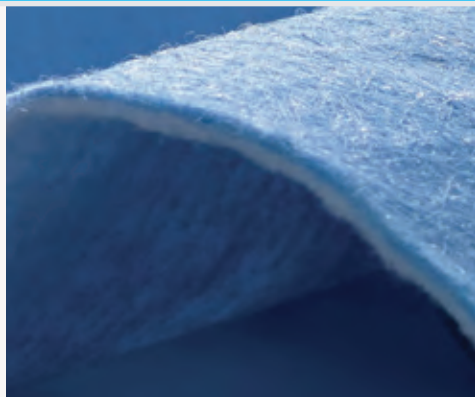
### An autonomous system that is long-lasting and maintenance-free

- Systematic biodegradation in the ground
- Self-regulated according to the quantity of hydrocarbons
- Buffer storage in the case of an accident

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### An economical, ecological solution

- Protection of the subsoil, and underground water tables
- Natural biological functioning with local micro-organisms
- Economical solution through local infiltration
- Simple and quick to install



For more information on projects,  
 installation of the aquatextile  
 and the savings, please contact us:

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Cleaning Water.  
 Naturally

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