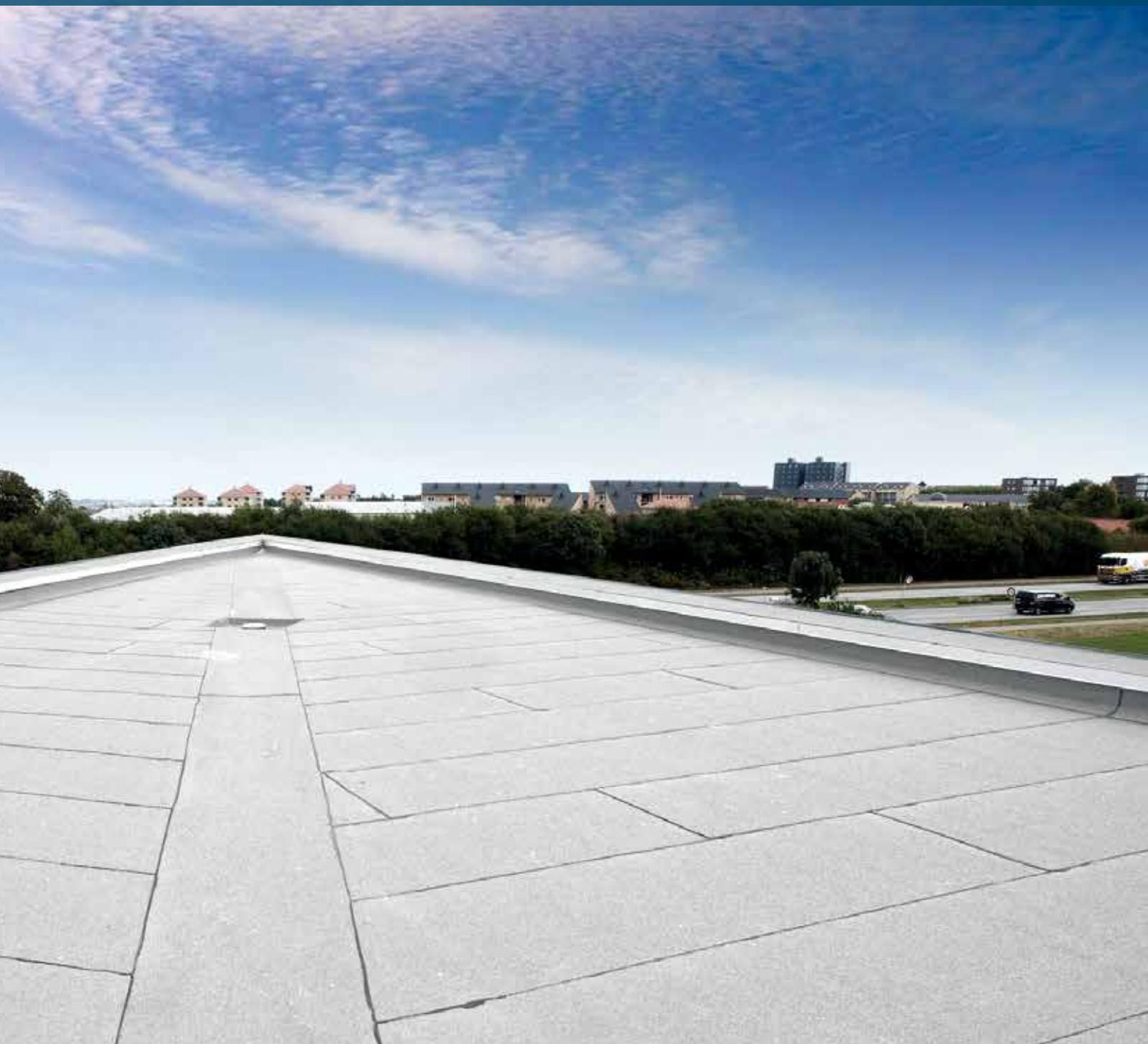


NOx-Activ®

Reduction in air pollution through photocatalysis using the NOx-Activ® roof waterproofing system.





Combating air pollution, a challenge for the planet.

Air, essential to life, is composed primarily of oxygen and nitrogen. A human being breathes in an average 10 m³ of air per day.

Since the boom of the industrial area, human activity has changed the atmosphere, disrupted the climate and worsened the air quality, introducing a host of substances which are harmful to our health.

Nitrogen Oxides (NOx) are considered to be one of the most harmful air pollutants to human health. It is an especially irritating gas that enters even the finest branches of the lungs, causing chronic bronchitis, especially in children.

In the summer months, the maximum limits set by WHO to protect health are often exceeded in heavy congestion and the urban belts.

On the other hand, the warming effect of NOx - 310 times higher than CO₂ - accelerates the greenhouse effect and global warming of the planet.

The fight against air pollution and their adverse effects requires the volume of traffic on the roads to be limited as well as a reduction in emissions by industry. However today it is also possible to combat pollution through the use of depolluting agents in building materials.

NOx-Activ[®] contributes to
conserving the environment and
improving the quality of life in cities.



eco-activ[®]



Depollution effect: destruction of nitrogen oxides (NOx).

.....
In traditional construction work: single or double layer, fixed mechanically or welded.

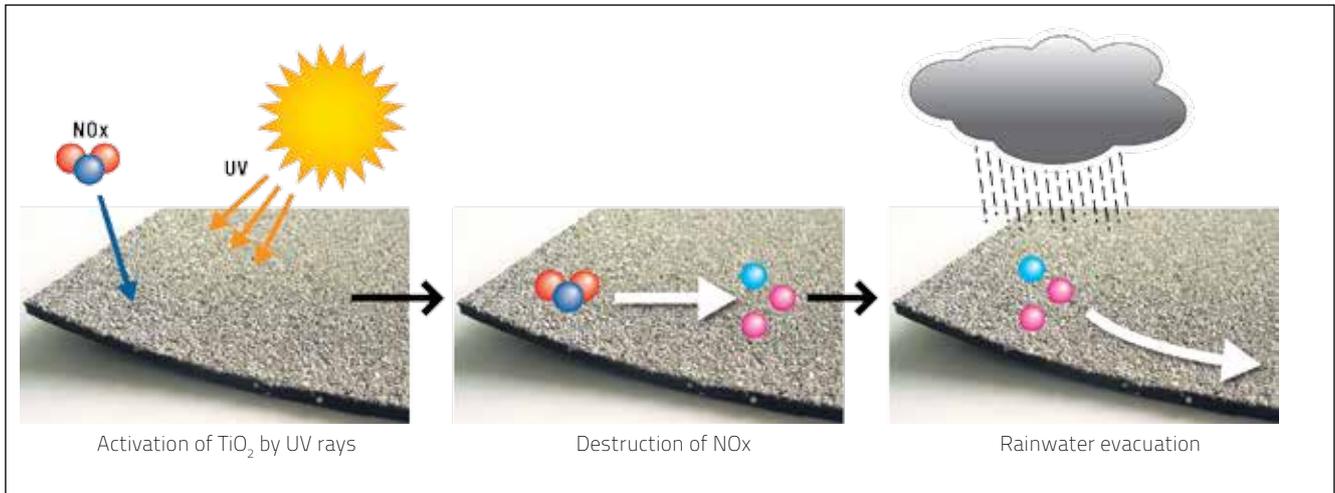
.....
Certified System: Innovation patented by CSTB (France).

.....
Added value to the building.

noXactiv®
una solución eco-activ®

How does NOx-Activ® work?

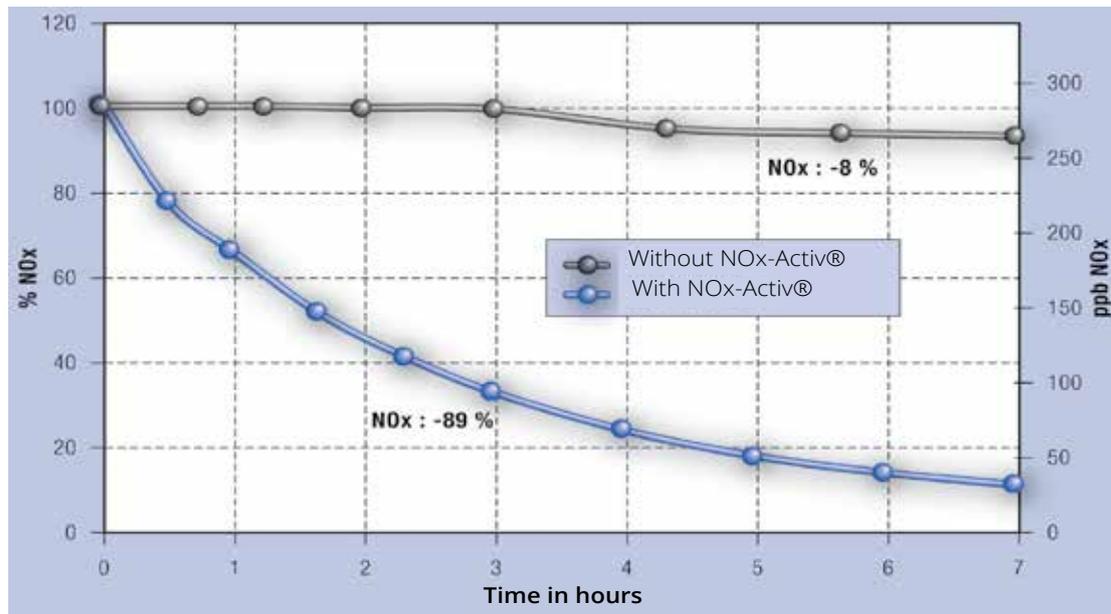
Under the effect of UV rays from the sun, the NOx-Activ® membrane causes the oxide pollutants (NOx) to be broken down into by-products which are carried off safely in the rainwater.



Note: The concentration of nitrates produced by photocatalysis is lower than in any bottled mineral water. It has no impact whatsoever on the quality of rainwater (see the analysis laboratory report).

NOx-Activ®, our depollution solution right from the roof of your own home

NOx-Activ® membrane is protected by NOXITE®, a TiO₂-based material (titanium dioxide, in the anatase form), a depolluting agent by photocatalysis (see the European study Picada). This is a depollution system activated by sunlight, demonstrated in a CNRS laboratory (National Centre for Scientific Research, France). The depolluting effect achieved is permanent over the useful life of the waterproofing membrane.



Pass'Innovation CSTB

The NOx-Activ® is an innovation in roof waterproofing and environmental protection. It has been awarded Innovation Pass No. 2009-016 and has received a maximum recommendation from the CSTB. A summary of the evaluation can be downloaded from the CSTB website. The final report as well as the full technical report are available upon request from ICOPAL.



Our range of NOx-Activ® membranes

NOx-Activ® membranes are made up of SBS bitumen, with a self-protected upper surface via Noxite®granules.

NOx-Activ® can be installed in new constructions or renovations alike, on non-trafficable roofs (or access solely for maintenance).

NOx-Activ® membranes form part of a single or double-layer asphalt waterproofing system applied on top of the concrete base, sheet steel deck or any other support element. There is a suitable product for each of these applications.

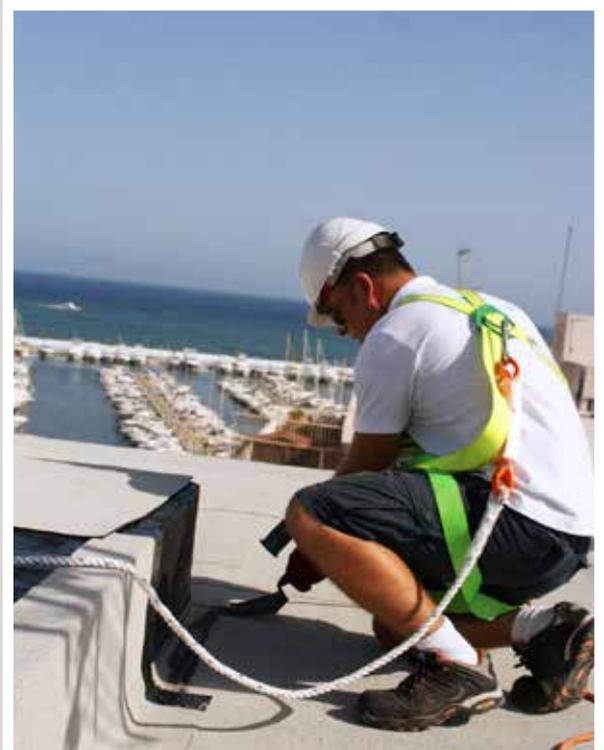
	Parafor Solo GS NOx-Activ (welded)	Parafor Solo GFM NOx-Activ (fixed mechanically)	Paradiene 30.1 GS NOx-Activ (welded)	Paradiene 40.1 GS NOx-Activ (welded)	Adesolo G NOx-Activ (self-adhesive)
Reference	101795	101790	101787	101788	102058
Width	1 m	1 m	1 m	1 m	1 m
Length	7 m	7 m	10 m	8 m	7 m
Reinforcement	180 g/m ² polyester	180 g/m ² polyester	50 g/m ² glass fleece	90 g/m ² glass fleece	180 g/m ² polyester- glass fleece composite glass
Thickness	4 mm	4 mm	2.6 mm	3 mm	4 mm

In traditional building work

The NOx-Activ® membrane forms part of a single or multi-layer system. In the multi-layer system, the base layer can be a self-adhesive membrane, or mechanically fixed or a welded membrane.

For the NOx-Activ® range, follow the installation instructions for each corresponding membrane with its traditional finish. NOx-Activ® membranes do not require any more care or maintenance than other mineral self-protection membranes manufactured by Icopal.

For more details on the design, installation and maintenance, consult the Icopal team.



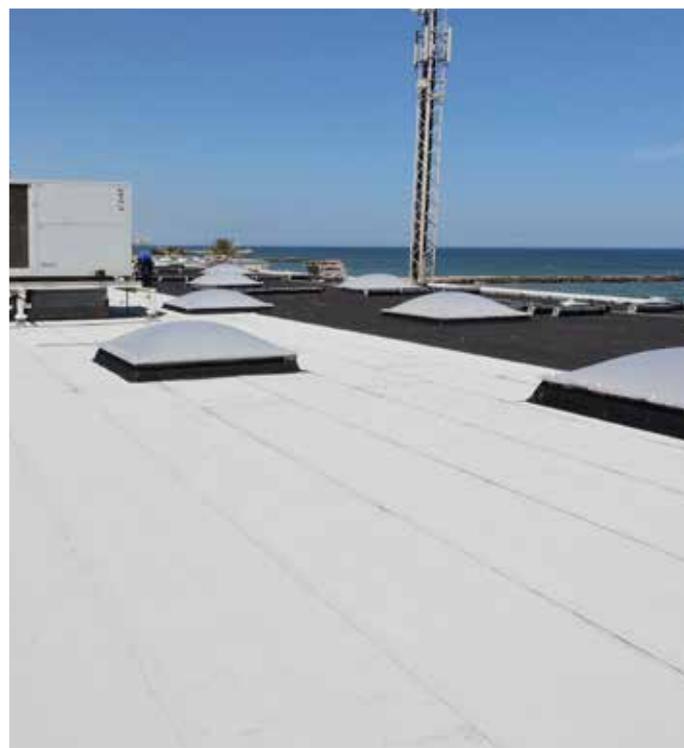
Traditional application
.....
Perfect solution for any
traditional system



Photocatalysis around the world

The principle of photocatalysis with titanium dioxide TiO_2 was discovered in Japan in the 1970s. Its application in a myriad of fields (health, Civil Works, Construction Materials etc.) has been gaining ground since the 2000s. Its use in various fields (health, interior ambience and well-being, automobile, urban civil engineering, materials for the interior and the exterior) have been multiplying during the last ten years.

For more information: www.photocatalysis-federation.eu (European Photocatalysis Federation).



For more information about NOx-Activ® visit:
www.siplast-international.com

The screenshot shows the Siplast International website. The main navigation bar includes: ABOUT US, PRODUCTS CATALOGUE, SELECTION GUIDE, ENVIRONMENT, DOWNLOADING, REFERENCES, NEWS. The 'ENVIRONMENT' section is active, displaying a sidebar with links: Green roofs, Photovoltaic systems, Waterfall management, Reflective underlay, Air depolluting membrane (highlighted), Coolroof, and Solvent free liquids. The main content area is titled 'AIR DEPOLLUTING MEMBRANE' and contains the following text:

NOx are one of the greenhouse gases harmful to the environment: NOx particles are a major component of acid rain, which can damage both trees and entire forest ecosystems, and lead to an imbalance of species in the atmosphere that can be dangerous for humans.

NOx is also believed to be a major aggravator of respiratory diseases such as asthma.

Luckily, increasing amounts of these NOx particles are being emitted from households, traffic and industries.

The use of **NOx-Activ membranes** can help to reduce the negative impact on the environment. The surface of the Siplast **NOx-Activ membranes** is covered with **Titanium dioxide** which acts as a catalyst in the process of changing the NOx particles into harmless nitrates.

The process is activated when the ultraviolet radiation from the sun hits the roof. Polluted air passes over the **NOx-Activ membranes** where the NOx particles are converted into harmless levels of nitrates and washed away by the rain.

Benefits of the NOx-Activ membranes:

- the effect provided by the NOx-Activ membranes leads to the entire life of the roof.
- their advantage from natural solar energy through the use of photocatalysis.



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