



ROOFING

SikaShield® Pure-Air

THE BITUMINOUS MEMBRANE THAT HELPS TO KEEP THE AIR CLEAN

AIR POLLUTION

A serious threat for our planet and its population

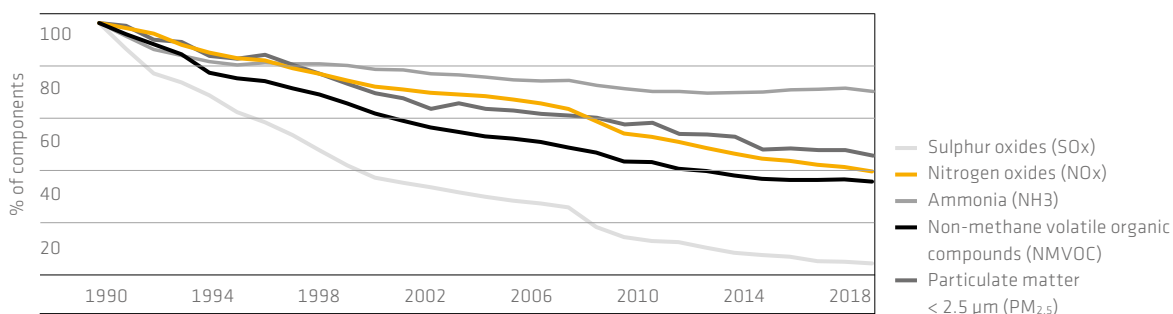
Air pollution represents a serious threat for the planet and its population. WHO, World Health Organization, has estimated that it can be addressed as the cause of more than 3 million deaths in the world¹.



Among the different harmful components of air pollution, Nitrogen oxides, commonly referred to as NOx, account for more than 33%². Nitrogen Dioxide (NO₂) is one of a group of highly reactive gases known as nitrogen oxides (NOx) and it gets in the air from the burning of fuel from cars, trucks and buses, power plants, and off-road equipment. Breathing air with a high concentration of NO₂ can irritate airways in the human respiratory system leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing) and may contribute to the development of asthma and potentially increase susceptibility to respiratory infections³.

From an environmental perspective, NOx contributes to nutrient pollution in coastal waters as well as to form acid rain, which harms sensitive ecosystems, such as lakes and forests. Despite decreasing since 1990 thanks to the introduction of particle filters, catalytic converters and stricter emissions regulations, NOx emissions are still significantly high and can be linked to 38,000 premature deaths worldwide, according to new research¹. There is no doubt that one of the most fundamental challenge, nowadays, is to contrast NOx emissions¹.

EMISSIONS OF AIR POLLUTANTS³



¹ Source: EMISSIONS OF AIR POLLUTANTS EU-27, 1990 - 2018 (INDEX 1990=100) <https://www.newscientist.com>

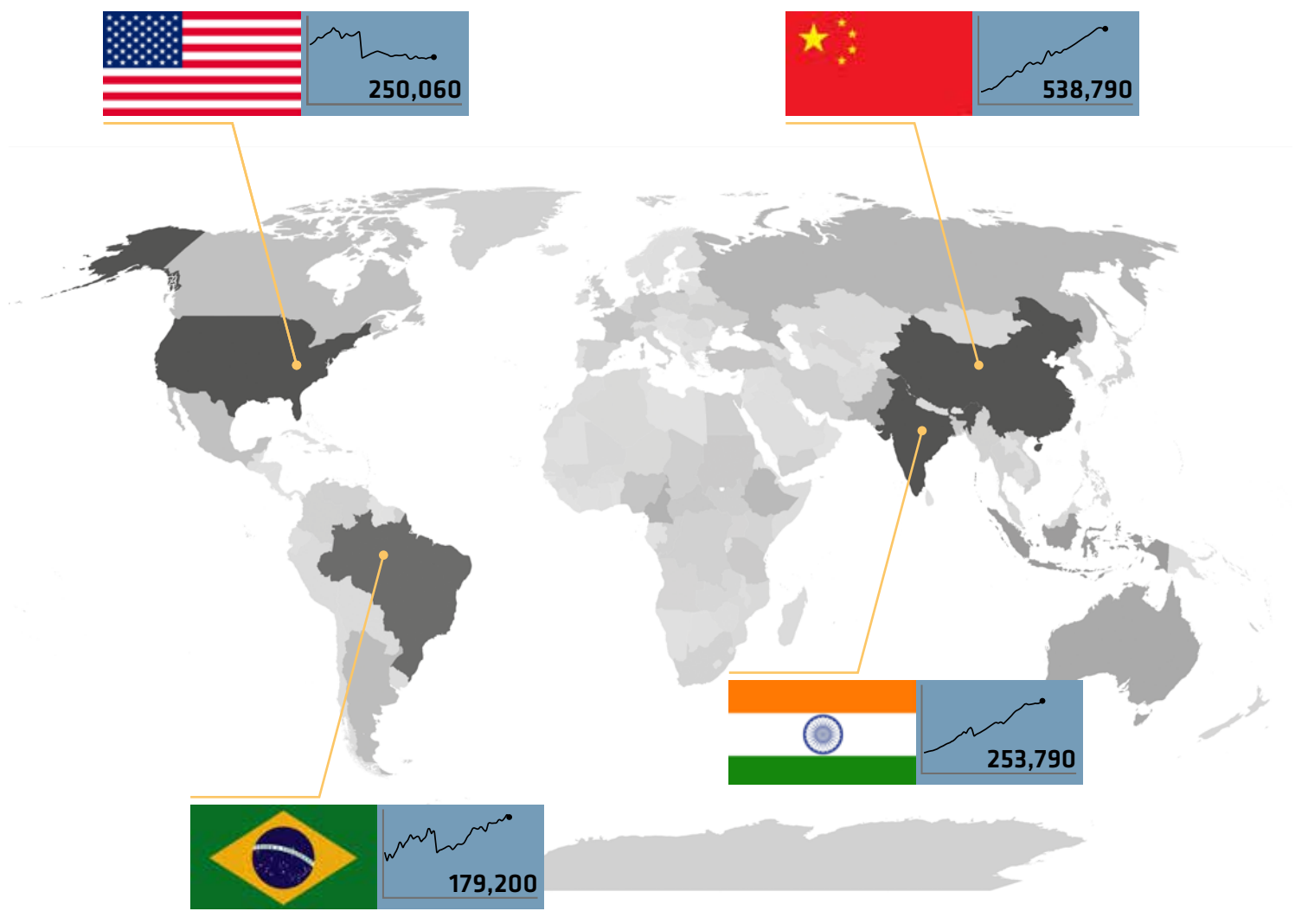
² Source: <https://ec.europa.eu>

³ Source: <https://www.epa.gov>

A WORLDWIDE CHALLENGE

NOx emissions, a still hot topic: Call for action

NOx EMISSIONS as CO₂ equivalents⁴



Despite most developed countries are adapting measurements to limit and reduce the NOx emissions, in the emerging countries this trend is not always respected. The graph reports the values of NOx emissions as CO₂ equivalents in 2018 (value reported in thousand tons). The "Top Countries" for NOx contributions are highlighted and the relative evolution of NOx emissions between 1970 and 2018 are shown.

⁴ Source: <https://data.worldbank.org>

SikaShield® Pure-Air

The bituminous membrane that helps to keep the air clean

THE ENSURED PERFORMANCE OF A STANDARD SIKA BITUMINOUS MEMBRANE COUPLED WITH THE CLEANING FUNCTION OF TITANIUM DIOXIDE TECHNOLOGY.

Sikashield® Pure-Air IS THE INNOVATIVE bituminous membrane born from Sika's commitment towards sustainability.

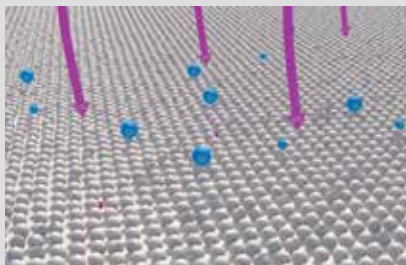
Its advanced TiO₂-based technology allows to trap and remove harmful compounds of the pollution released by the exhaust gases of the vehicles or industries, reducing smog, thus helping to make the city or industrial area environment greener.

White granules of TiO₂ on top of the membrane guarantee the cleaning function of the product.



THE CLEANING FUNCTION OF Sikashield® Pure-Air

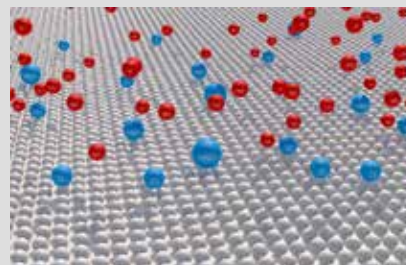
1



THE UV RADIATION ACTIVATES THE TiO₂

The slates on the surface are coated with titanium dioxide (TiO₂), which acts like a catalyst and is activated when UV radiation from the sun hits the particles, releasing energy for breaking the NO_x particles.

2



NO_x ARE CONVERTED INTO HNO₃ BY CHEMICAL REACTIONS

The harmful NO_x compounds are removed from the atmosphere by reacting with the TiO₂ surface and the water vapor in the air resulting in nitric acid, HNO₃.

3



THE RAIN WASHES OUT THE HNO₃, REGENERATING THE MEMBRANE

The HNO₃ is removed from the surface of the membrane by rain, which regenerates the catalyst function of the TiO₂ for a new cycle and which lasts for the entire life of the roof.

SikaShield® Pure-Air

Proven performance

Studies were carried by a specialized German Laboratory to measure the photocatalytic performance based on the ISO 22197-1 and SikaShield® Pure-Air showed a capacity of NO_x levels reduction of 6.12 mg/m² per hour, which is considered by the FAP as a very good degradation efficiency.

THIS MAKES AN INCREDIBLE CONTRIBUTION TO REDUCE THE AIR POLLUTION BY NO_x COMPOUNDS, SPECIALLY FROM THE ROAD TRANSPORTATION, WHICH IS THE MAIN CONTRIBUTOR TO AIR POLLUTION*



ISO 22197-1:2016

Fine ceramics (advanced ceramics, advanced technical ceramics) – Test method for air-purification performance of semiconducting photocatalytic materials – Part 1: Removal of nitric oxide

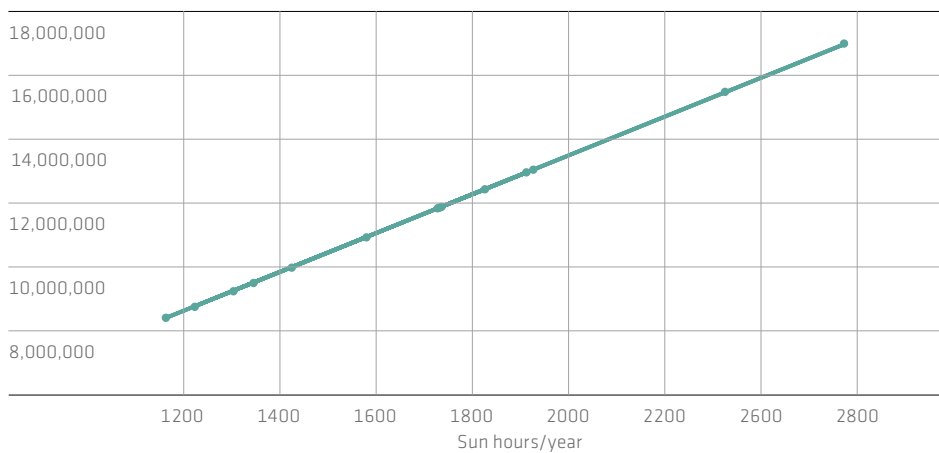


THE IMPACT OF THE CLEANING FUNTION OF Sikashield® Pure-Air

A diesel truck driving on a suburban area with a speed around 40 – 80 km/h, emits around 1.5 g/km of NO_x. This means that¹:

- 10,000 m² of SikaShield® Pure-Air can clean more than 104,000 km a year in USA
- 100,000 m² of SikaShield® Pure-Air can clean more than 770,000 km a year in Europe
- 1,000,000 m² of SikaShield® Pure-Air can clean more than 13 million km a year just in between these two regions (Europe and USA)

KM CLEANED BY SikaShield® Pure-Air³



* Reference: Pollutant emissions from transport – Products Datasets – Eurostat (europa.eu)

SikaShield® Pure-Air

Product technical details

PRODUCT TECHNICAL SPECIFICATION

Product information		
Composition	SBS modified bitumen	
Reinforcing material	180 gr/m² non-woven polyester fabric stabilised with glass fibre	
Packaging	1 m x 10 m	
Weight	5.0 kg/m²	
Color	White mineral granules	
Technical information		
Flexibility at low temperature	≤ -25°C	
Tensile strength (EN 12311-1)	Longitudinal 900 N/50 mm ± 20%	Transversal 700 N/50 mm ± 20%
Elongation (EN 12311-1)	Longitudinal 50% ± 15%	Transversal 50% ± 15%
External fire performance (EN 13501-5)	Broof t2	
Solar Reflectance Index (SRI) (ASTM E 1980)	0.51	



SikaShield® Pure-Air: EASY AND FAST APPLICATION

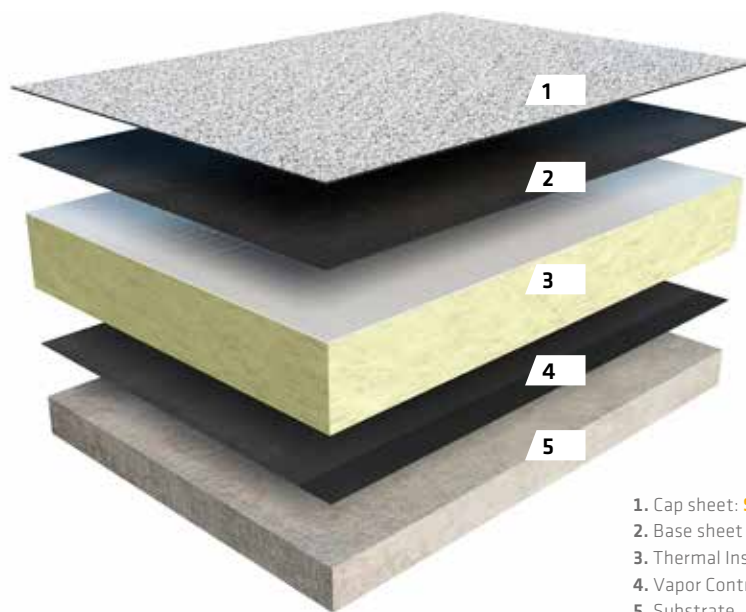
Sika – The best solution for roofing system

SIKA ROOFING SYSTEM

SikaShield® Pure-Air can be easily integrated into any Sika Roofing System as a bituminous cap sheet membrane. Either new constructions or renovation.

Consequently, the projects can be benefited with a sustainable solution but keeping different levels of quality and performance required by the customers or local regulations.

SYSTEM BUILD-UP



1. Cap sheet: **SikaShield® Pure-Air**
2. Base sheet
3. Thermal Insulation
4. Vapor Control Layer
5. Substrate

MAIN APPLICATION STEPS

SikaShield® Pure-Air is applied in the same way as any other bituminous membrane torch applied.

1



SURFACE PREPARATION AND PRIMING

The surface must be adequately prepared and the prime needs to be applied accordingly.

2



TORCHING THE 1ST LAYER

Use a gas burner to heat the substrate and the backing film on the underside of membrane.

3



SECOND LAYER

Apply the SikaShield® Pure-Air and avoid to straddle the overlap. The burner flame must also heat the membrane already laid.

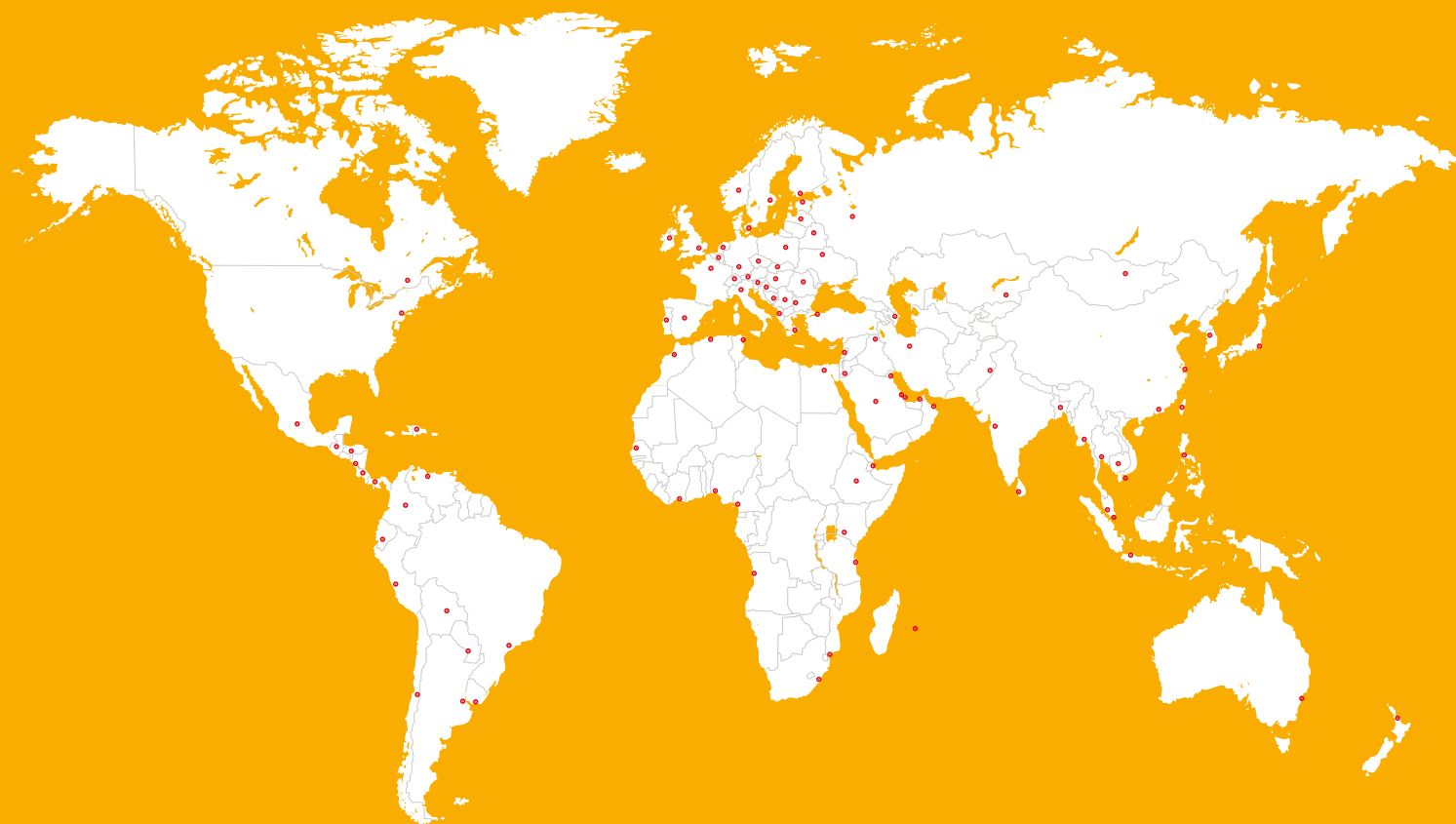
4



ENJOY

Enjoy your final roof.

GLOBAL BUT LOCAL PARTNERSHIP



FOR MORE SIKA ROOFING INFORMATION:



WE ARE SIKA

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika's product lines feature concrete admixtures, mortars, sealants and adhesives, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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BUILDING TRUST

