

Vandex[®]

ANY CONCRETE WE IMPROVE!

**RPM BELGIUM
VANDEX**

Vandex is the worldwide registered trademark for a range of professional construction chemical products for waterproofing, concrete repair and protection of buildings.

With an impressive track record of successfully completed waterproofing jobs ranging from preventive work in new construction to complex troubleshooting in existing structures carried out over a period of more than 65 years, the Vandex Group has gained worldwide recognition not only as a technology inventor but also as a reliable partner which aims at long-term, close customer relationships through responsible marketing and strong technical support.



Reliability
 Product Quality
 Customer Focus
 Employer of Choice
 Innovation
 Sustainability

In May 2006 Vandex joined RPM International Inc. RPM International Inc. is a holding company owing subsidiaries that are world leaders in specialty coatings, sealants, and building materials serving the industrial and consumer markets.

Since June 2013 Vandex is intensifying the cooperation with RPM-Belgium Group (MMA/PUMA technology) and going to market unique solutions for the construction industry.

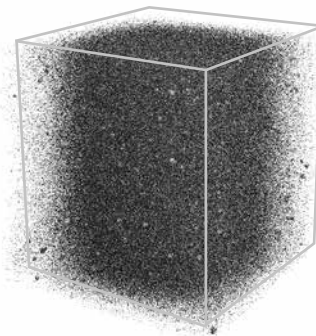


CRYSTALLINE WATERPROOFING TECHNOLOGY

The founder of Vandex invented crystalline waterproofing technology in 1943 - founding a whole new industry and gaining Worldwide recognition for crystalline performance and unparalleled high quality of crystalline technology in waterproofing and protection of concrete.

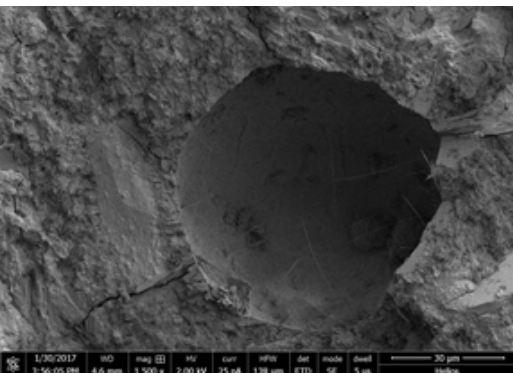
CRYSTALLINE WATERPROOFING - THE ART OF CONTROLLED GROWTH OF CRYSTALS

VANDEX SUPER is a coating material that is brush-applied onto the surface of concrete. It exhibits a very dense microstructure with significantly lower porosity compared to the concrete, which enables it to reduce the permeation of water right from the surface. At the same time, the key chemical of **VANDEX SUPER**, permeates into the concrete and changes the pH and chemical composition of the pore solution. This initiates reaction with existing hydration products in the concrete. As seen in the SEM images, there is a formation of crystals, which block the void spaces within the concrete and can further prevent the permeation of water.

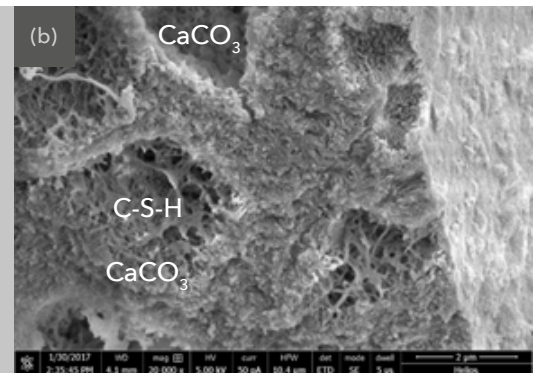
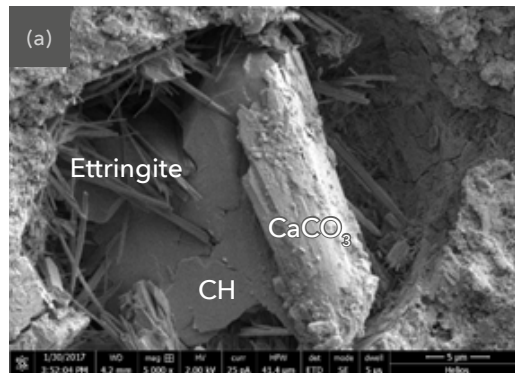


Porosity: Micro-Ct scan | 3D reconstruction by stacking the individual slices one on top of others

VANDEX AM 10 is a crystalline admixture powder that is added during concrete mixing. At a small dosage (only 1-2 % by weight of cement), this admixture can accelerate the development of crystals within the concrete. At a certain point after cement hydration begins, crystals form through the reaction of the **VANDEX AM 10**, with hydration products in a similar manner as that of **VANDEX SUPER**. Crystals continue to grow throughout the concrete until the chemical is consumed, effectively blocking the void spaces, reducing overall porosity, and reducing the permeation of water.



SEM images of an open pore in plain cement paste without any crystalline waterproofing treatment

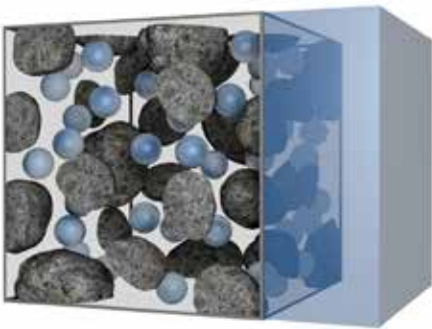
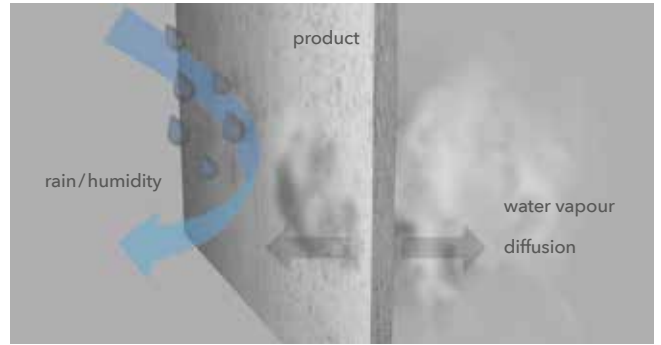


SEM images of void spaces blocked by crystals in cement paste samples treated by (a) **VANDEX AM 10** and (b) **VANDEX SUPER**

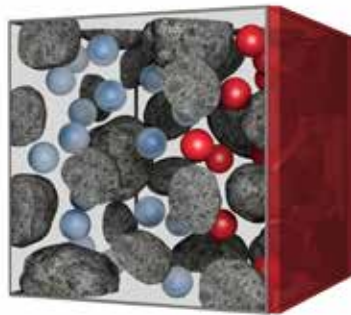
STRUCTURAL WATERPROOFING

Vandex has two types of waterproofing products:

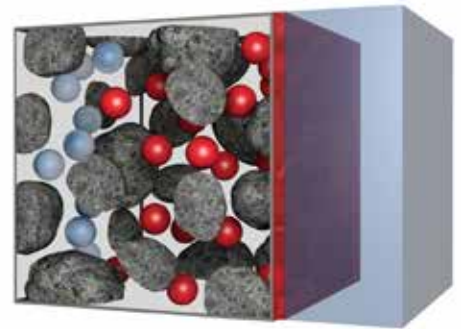
- ▶ Capillary active components which work by penetration of the product into the concrete to provide in-depth waterproofing.
- ▶ Slurries and mortars which form a waterproofing barrier.



Concrete wall exposed to water. The water has forced its way into the capillaries. Long-term effect: leaky, damaged concrete.

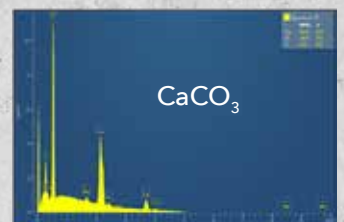
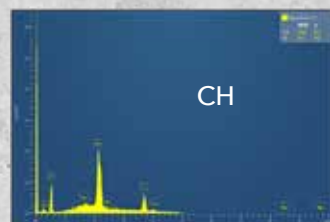
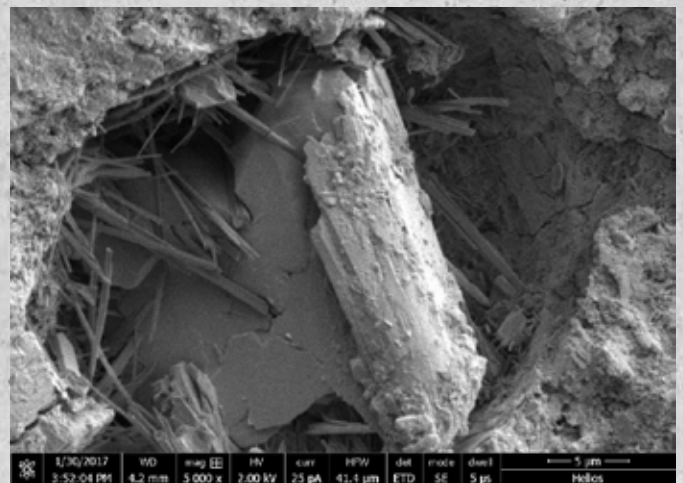
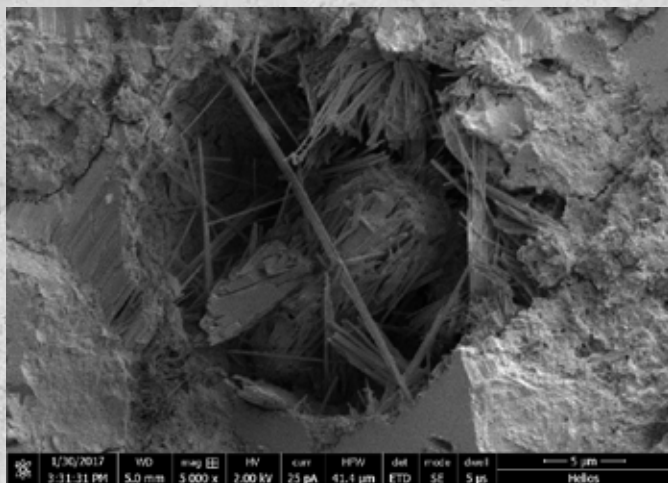


After Vandex treatment: The reaction between the free lime, moisture and the Vandex chemicals has set in. Vandex penetrates the concrete forming chemical complexes which substantially constrict the capillaries.



The concrete is now watertight but still allows water vapour to pass. The Vandex chemical complexes remain in the concrete, ready to reactivate upon water impact.

Experimental results
Scanning electron microscopy (SEM)



Void spaces in sample images are filled with not only ettringite or CH, but also CaCO₃.

| SEWAGE

Vandex products are applied in sewage systems specifically to protect the concrete components exposed to certain types of wear and stress.

In closed sewage tanks, an H₂S contaminated atmosphere develops.

PUMACRYL and **VANDEX POLYCEM Z** can be considered for the refurbishment of old structures, as well as for preventive treatment for new structures.



New brand
in Europe

Fast Waterproof Coating System

Developed to improve concrete in highly aggressive environments



Mexico: Waste Water Tunnel



Switzerland: Geneva Sewage Treatment Plant



| POTABLE WATER

In the last 70 years Vandex has acquired a considerable amount of expertise in applying mineral based coatings in water tanks, and is today one of the leading companies in this sensitive and specialised field.

CEMLINE is a WRAS certified comprehensive range of mineral modified solutions providing ultimate protection in potable water.



New brand
in UK



| APPLICATION

Cementitious Vandex materials can efficiently and safely be applied in various ways:



VANDEX AM 10 added at the batching plant



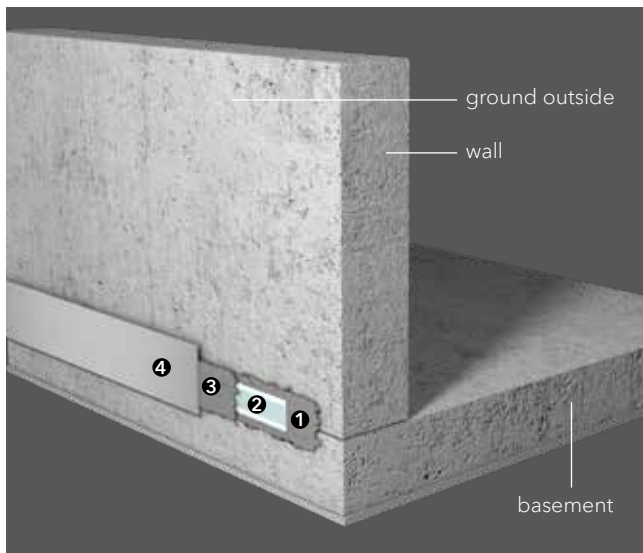
trowel application



fine spray



brush application



- ❶ VANDEX BB 75 E or VANDEX CEMELAST, 1st layer
- ❷ VANDEX CONSTRUCTION JOINT TAPE
- ❸ VANDEX BB 75 E or VANDEX CEMELAST, 2nd layer
- ❹ mechanical protection

| JOINT SOLUTIONS

Sealing of Construction and Movement Joints



| RESEARCH AND DEVELOPMENT

Vandex is an organisation which through innovation, know-how, experience and strong motivation supports its products with appropriate services in the fields of research & development, testing and engineering thus adding significant value to the basic qualities and benefits of the Vandex products.



| TECHNICAL SERVICE

Vandex gives priority to responding to customer requirements concerning products or systems and to developing products and services which provide attractive customer benefits. Vandex's technical services for users, designers and applicators assure a high degree of customer satisfaction. Training and consulting is offered locally or at the head office.

| QUALITY AND ENVIRONMENT

The Vandex group has been certified according to the ISO 9001:2015 „Quality Management Systems“ since 1994 and to the ISO 14001:2015 „Environmental Management Systems“ since 2004. This verifies that the Vandex companies meet the requirements of international quality and environmental standards.

QUALITY CONFIRMED



REFERENCES



© Picture credits: NYC Department of Environmental Protection

▲ **Croton Water Filtration Plant** (underneath the golf course)
Bronx NY, United States of America

Vandex Products Used: VANDEX SUPER
Total Area: 11.000 m²



© Picture credits: Emilio Garcia

▲ **Calatrava's Palacio de las Artes**
Valencia, Spain

Vandex Products Used: VANDEX SUPER | VANDEX PREMIX |
VANDEX BB 75 E Z | VANDEX UNI MORTAR 1 | VANDEX PLUG
Total Area: 11.000 m²

▼ **Tamar - Central Government Complex**
Hong Kong Island

Vandex Products Used: VANDEX SUPER | VANDEX PREMIX
Total Area: 42.000 ft²



▲ **Geneva Step Aire, Sewage Treatment Plant**
Geneva, Switzerland

Vandex Products Used: VANDEX POLYCEM Z
Total Quantity: 544 t



Find more information on our website
www.vandex.com



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