

## TX Active: Photocatalytic Principle



For more than a decade, our technology center has been studying photocatalysis and its application in "cementitious materials." Among the findings are that cementitious materials represent the ideal solution for spreading photocatalysts widely and evenly over both the horizontal and vertical surfaces of architectural and structural elements.

TX Active was used for the first time in 1996 for the production of the precast panels that form the three graceful "sails" in the Roman landmark **Dives in Misericordia Church** designed by Richard Meier.

Since then, our research, development and improvement of this type of cement has been relentless. Early photocatalytic cements were effective in keeping surfaces clean; the levels of photoactivity achievable with **TX Active** cement is such that it actually abates the organic and inorganic substances responsible for air pollution.



### Architecturally Beautiful

The aesthetic qualities of the final concrete elements, regardless of whether they are prefabricated or cast in place, are dramatically enhanced and remain in excellent condition for years.

Micro-organisms, combined with the accumulation of fats, particulate matter and rain, are responsible for the gradual soiling and dulling of facades. The photocatalytic properties of **TX Active** work to keep surfaces clean with consistent brilliance of appearance.

### Environmentally Responsible

When empowered with the photocatalytic properties of **TX Active**, concrete surfaces keep clean and effectively abate smog and many other urban pollutants.

Whether the applications are for horizontal structures, vertical structures or inside tunnels, **TX Active** can be an effective tool in fighting pollution while keeping concrete surfaces whiter and brighter.

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**TX Active**<sup>®</sup>  
Photocatalytic Cements



Cleaner Buildings, Cleaner Air



# Photocatalysis: The Power of Light

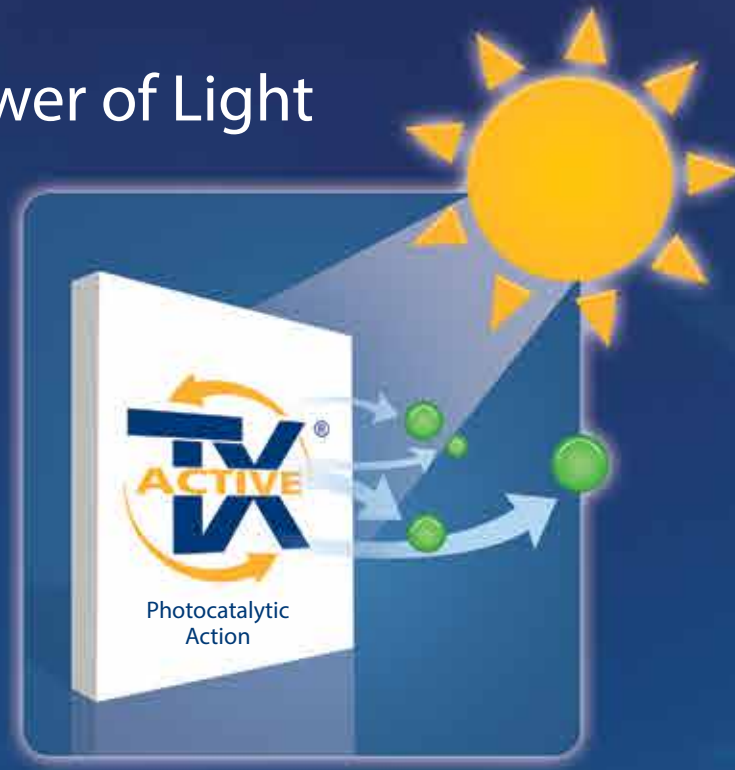
Photocatalysis is a natural phenomenon in which a substance known as a photocatalyst uses light to expedite the rate of a natural oxidation process.

By taking advantage of the light energy from the sun, the photocatalyst will accelerate the formation of strong oxidizing reagents which will result in the decomposition of organic and inorganic pollutants.

Photocatalysis is therefore an accelerator of oxidation processes that already exist in nature. It promotes faster decomposition of pollutants and prevents them from accumulating.

For over a decade, photocatalysis has been applied to various materials—glass, ceramic, cementitious binders—to obtain a “self-cleaning” effect.

Ever-increasing air pollution affecting urban areas has recently compelled researchers to take advantage of photocatalytic properties to abate the noxious substances that are contaminating the environment.



Introducing the Photocatalytic City: A Vision of the Environmental Future.



# Architecture In A New Light



**Dalton State College  
Bell Tower**  
Dalton, GA

**TX Active** cement was developed in 1996 to achieve the strict design specifications demanded by Richard Meier for his Dives in Misericordia Church project in Rome: purity of white, eye-opening brilliance and the preservation of these final aesthetic qualities throughout the ensuing decades.

Since then, **TX Active** has been the cement of choice for many prestigious architectural works; projects in which the quality of the building materials and their final appearance are equally important in achieving the original architectural vision.

In addition to ensuring the same physical and mechanical properties of traditional concrete, concrete produced with **TX Active** cement offers extraordinary brilliance and “self-cleaning” properties so that the original beauty is retained for years.



# Preserving the Environment

**TX Active** imparts materials with photocatalytic properties enabling them to abate noxious substances produced by human activities such as industry, transport and residential heating systems.

**TX Active** can be used anywhere concrete or cement-based products are utilized proving to be successful in the following applications:

### Horizontal Structures

- Interlocking concrete pavers
- Pavement and road surfacing
- Concrete roof tiles
- Concrete sidewalks
- Cement-based tiles
- Pervious concrete

### Vertical Structures

- Architectural precast panels
- Tilt-up concrete panels
- Cladding elements
- Noise barriers for roads and highways
- Concrete median barriers



**I-35 Gateway Elements**  
Minneapolis, MN



**LSU Basketball Practice Facility**  
Louisiana State University, Baton Rouge, LA



**Governor Mifflin Intermediate School**  
Shillington, PA



**University of Miami Frost School of Music**  
Miami, FL



**Mary Bartelme Park**  
Chicago, IL