

**TX Active ®: Self-Cleaning & Pollution Reducing Cement**

TX Active ® is a patented cement technology developed by Essroc Italcementi Group for the production of self-cleaning and de-polluting concrete. Concrete produced with TX Active cement can be used in a wide variety of applications—from architectural precast panels to plaster/stucco for finish coat applications.

Accomplished by the use of proprietary nanotechnology and the principle of photocatalysis, TX Active will destroy atmospheric compounds that discolor concrete surfaces over time. In addition, TX Active will reduce the primary pollutants which are deemed harmful to human health and our environment.

Photocatalysis is a natural phenomenon in which a substance uses light to alter the rate of a chemical reaction. In this case, the active ingredient utilizes the UV light from the sun to accelerate the formation of strong oxidizing reagents which decompose most organic and inorganic substances in the atmosphere. Essroc Italcementi Group research teams were compelled to develop this breakthrough technology as a way to abate the ever-increasing air pollution affecting urban areas, to keep structures more aesthetically pleasing with less exterior maintenance and to contribute to a better quality of life.

TX Active is now at work in several architectural landmarks, most notably our first project completed in 2001, the Dives in Misericordia Church in Rome, Air France headquarters at Charles DeGaulle Airport in Paris and numerous other sites throughout Europe. Now available through Essroc Italcementi manufacturing operations in North America, TX Active is expanding the creative latitude of architectural designers seeking to empower their structures with the cleaner and greener capabilities unique to this cement technology.

Potentially, any product containing a cementitious material as its base could be manufactured with TX Active cements. These applications include: precast and architectural panels, pavements, sidewalks, concrete pavers, roof tiles, traffic and noise barriers, and plaster/stucco finish coats.

**SELF-CLEANING:** Compounds diminished or eliminated by the use of TX Active photocatalytic cements include:

- Soot, grime and organic particulates
- Mold, mildew, fungus and their spores
- Algae, bacteria and allergens
- Tobacco smoke and stains

**POLLUTION REDUCING (DE-POLLUTING):** In addition to self-cleaning, surfaces containing the TX Aria type of photocatalytic cement decrease many of the pollutants deemed harmful to human health and the environment. TX Aria has been proven to reduce:

- Nitrogen Oxides (NOx) —major component in the formation of acid rain, ground level ozone (smog), certain toxic chemicals and water quality deterioration.
- Sulfur Oxides (SOx) —component to acid rain and the formation of many harmful sulfates and other products
- Volatile Organic Compounds (VOCs) —such as benzene and toluene.
- Ammonia (NH3).
- Carbon Monoxide (CO).
- Organic chlorides, aldehydes, polycondensated aromatics, among others.



# The Photocatalytic Principle

