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Fluoropolymers: Architecture

Introduction

The unique combination of properties of fluoropolymers makes them a product of choice for many challenging applications in architecture. Many landmark buildings of the last few decades have utilized these properties.

Specific coating systems can reduce building cooling costs and the associated energy use (by between 4% up to 22%, depending on colour, geographical location, climate conditions, and substrate type).

Architectural design plays an important role as part of the European “creative industry”. Activities in this sector had a turnover of €36.2bn, with some 493,000 jobs (registered architects) in the EU as of 2012.

Applications

- Architectural films. Films from fluoropolymers such as ETFE are used as parts of the roofs in stadia, domes and other structures
- Fluoropolymer coated glass fabric roofs, and laminated coatings
- PTFE Woven Fabric
- Fluoropolymer-based paints
- Bridge and off shore bearing pads. Made from PTFE as it has the lowest friction coefficient of all plastics
- “Cool Roof” technology

Benefits

- Combination of waterproofing, breathability and comfort (thin and light)
- Increased lifetime of the product or building component, even in extreme environments
- Reduced maintenance of building structures
- Novel architectural designs requiring flexibility and thin materials
- Weight reduction of building structures
- Improved fire safety - No flame propagation and low smoke generation
- Improving energy efficiency of buildings
- Facilitates composting
- Non fouling and easy clean



Innovations

- "Signature" buildings: O2 Dome in London, the Sony Centre in Berlin, Eden project in Cornwall, UK.
- Novel design solutions: Wimbledon Centre Court retractable roof, Allianz Arena in Munich with changeable light facade, San Mamés stadium in Bilbao.

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