

ADVANCED POLYMER CONCRETES AND COMPOUNDS

Oleg Figovsky, Dmitry Beilin

<http://www.crcpress.com/product/isbn/9781466590328>

Published: December 11, 2013 by CRC Press

Features:

- Reflects the newest developments in the rapidly growing field of building materials engineering
- Includes a special chapter devoted to new environmentally friendly polymer compounds for monolithic industrial floor coverings and coatings
- Assimilates the latest information for industry and puts it into perspective
- Deals systematically with polymer matrix concretes
- Includes extensive study of the novel types of polymer concrete based on a vulcanized polybutadiene binder and nanostructured organic-silicate matrix
- Presents the data on nonisocyanate polyurethane material for monolithic flooring and protective coating—the first nanostructured environmentally friendly polyurethane coatings
- Examines specific formulation of the new polymer-based compounds for application in harsh environments—fire-protective coating and coating with high crack-resistant properties

Summary

One way of improving performance attributes of building structures is to use a new class of materials—polymer composites. They have unique properties that combine high strength with features of non-metallic materials. Polymer concretes (PC) appear to offer many possibilities for producing new materials with desired physical and mechanical characteristics, such as improved mechanical strength, low permeability, and greater chemical resistance. Advanced Polymer Concretes and Compounds presents the results of theoretical and experimental research on efficient building material composites based on advanced polymer binders. ***Journal "Scientific Israel- Technological Advantages" Vol.16, no.1-2, (News) 2014***

This book examines the composition and properties of two new polymer concretes that have potential

to solve various construction issues: rubber concrete based on a polybutadiene binder and silicate polymer concrete with an organo-silicate matrix. It examines the physical, mechanical, and technological properties of these PCs as well as their behavior in harsh environments and durability and reliability issues. The authors describe a new environmentally friendly polymer for monolithic industrial floor coverings and coatings—nonisocyanate polyurethanes. They also discuss advanced crack-resistant coatings based on water dispersion of chlorosulfonated polyethylene, which can be used on concrete, metal, and plastic for various industrial uses such as aircraft, automobiles, paint, and in shipbuilding and civil engineering.

The book covers a new type of epoxy composition with nano-heterogenic structure with potential for better mechanical properties and chemical resistance, acid-resistant building materials based on a nanostructured binder, and an advanced environmentally friendly and weather-resistant fire-protective coating for indoor and outdoor application to flammable substrates. With a focus on novel concretes and protective compounds for a variety of environments, this book reflects the newest developments in the rapidly growing field of building materials engineering.