

# Unlock the Potential of Recycled Plastics in Eco-Efficient Concrete



## Use of Recycled Plastics in Eco-efficient Concrete (Woodhead Publishing Series in Civil and Structural Engineering) by Fernando Pacheco-Torgal

★★★★★ 5 out of 5

Language : English

File size : 198989 KB

Text-to-Speech : Enabled

Enhanced typesetting : Enabled

Print length : 469 pages

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Transforming the Construction Industry Towards Sustainability

The construction industry is facing increasing pressure to reduce its environmental footprint. One promising solution is the use of recycled plastics in concrete, which can significantly enhance the sustainability of this ubiquitous building material.

## **The Problem: Plastic Waste and Concrete Production**

Plastic pollution is a global crisis, with millions of tons of plastic waste ending up in landfills and oceans each year. Meanwhile, concrete production is a major contributor to greenhouse gas emissions, accounting for approximately 8% of global CO<sub>2</sub> emissions.

## **The Solution: Recycling Plastics for Eco-Efficient Concrete**

The 'Use of Recycled Plastics in Eco-Efficient Concrete' book explores the potential of using recycled plastics to address both of these challenges. It provides comprehensive insights into:

- **Types of recycled plastics** suitable for concrete applications
- **Methods for incorporating plastics** into concrete mixes
- **Mechanical and durability properties** of recycled plastic concrete
- **Environmental benefits** of using recycled plastics in concrete
- **Case studies and best practices** from around the world

## **Benefits of Using Recycled Plastics in Concrete**

Incorporating recycled plastics into concrete offers numerous benefits, including:

- **Reduced environmental impact** by diverting plastic waste from landfills and reducing CO2 emissions
- **Improved mechanical properties** such as increased strength, ductility, and toughness
- **Enhanced durability** against moisture penetration, freeze-thaw cycles, and chemical attack
- **Reduced weight**, making concrete easier to handle and transport
- **Potential cost savings** through the use of recycled materials

## Applications of Eco-Efficient Concrete

Eco-efficient concrete made with recycled plastics can be used in a wide range of applications, including:

- **Structural elements** such as beams, columns, and slabs
- **Non-structural elements** such as pavements, curbs, and tiles
- **Precast products** such as blocks, pipes, and culverts
- **Specialized applications** such as lightweight concrete, self-compacting concrete, and fiber-reinforced concrete

The 'Use of Recycled Plastics in Eco-Efficient Concrete' book is an essential resource for engineers, architects, contractors, and researchers seeking to reduce the environmental impact of construction while enhancing the performance and durability of concrete structures. By embracing the use of recycled plastics, the construction industry can take a significant step towards sustainability and a more circular economy.

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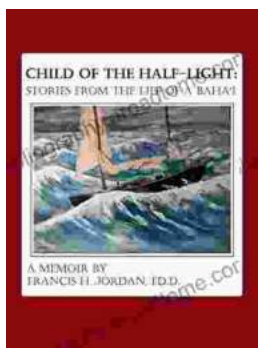
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