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Cairo University

INFLUENCE OF WASTE MATERIALS ON CONCRETE MIXES PROPERTIES

By

Deyaa Eldin Hassan Fikry Elsabbahy Ibrahim

A thesis submitted to the

Faculty of Engineering at Cairo University

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science

In

Structural Engineering

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Under supervision of

Prof. Dr. Ahmed Maher Ragab

Professor Emeritus of
Structural Engineering, Civil Engineering Dept., Faculty of Engineering, Cairo
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Approved by the

Examining Committee

Prof. Dr. Ahmed Mahmoud Maher Ragab

Thesis Main Advisor

Prof. Dr. Osama Abdel-Ghafour A. Hodod

Internal Examiner

Prof. Dr. Amr Amin El-Hefnawy

External Examiner

Professor of Civil Engineering

Housing and Building National Research

Center (HBNR)

FACULTY OF ENGINEERING, CAIRO UNIVERSITY

GIZA, EGYPT

2022

Engineer: Deyaa Eldin Hassan Fikry El-Sabbahy
Date of Birth: 10/4/1964
Nationality: Egypt
E-mail: diaa4hassan@yahoo.com
Phone. : 01061529053
Address: Cairo – Helmia El-Gedida– Egypt
Registration Date: / /
Awarding Date: / / 2022
Degree: Master degree
Department: Structural Engineering



Supervisor:
Prof. Dr. Ahmed Mahmoud Maher Ragab

Examiners: **Prof. Dr. Ahmed Mahmoud Maher Ragab** Thesis Main Advisor
Prof. Dr. Osama Abdel-Ghafour Ahmed Hodhod Internal Examiner
Prof. Dr. Amr Amin El-Hefnway External Examiner

TITLE OF THESIS:

INFLUENCE OF WASTE MATERIALS ON CONCRETE MIXES PROPERTIES

KEY WORDS:

Tyres waste – Black toner waste – Mortar mixes – Compressive Strength – Color toner waste

Summary:

This study examines the influence of two types of waste materials: (The first is the tyre waste while the second is the toner waste) used in the mortar mixes as replacement of fine grains aggregates. Several properties of the mixes are measured such as the compressive strength of the different mixes, the influence of adding these waste materials on the unit weight of the mixes, and the workability of the mixes. Possible applications of these mixes are also proposed. According to the results obtained from the current study, it could be concluded that Indian slag gives more compressive strength than the Egyptian slag which means that local slag should be exposed to some specific processes to give better performance. The highest compressive strength was obtained by utilizing Indian slag with the mixture of color and black waste toner. It was also concluded that the mixture of black and color toner (1:1 weight ratio) gave higher compressive strength than the case of black waste toner. The tyre mixes according to the results of this study have the lowest compressive strength compared with the compressive strength of the toner waste either for Indian and Egyptian slag.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

Name: Deyaa Eldin Hassan Fikry Elsabbahy

Date: / /2022

Signature:

Dedication
To
My family

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Firstly, Ultimate Thanks to "Allah"

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