



Managing wastewater sludge by using in concrete mixes in Jordan

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COMMITTEE DECISION

This Theses/ Dissertation (Managing Wastewater Sludge by Using it in Concrete Mixes in Jordan) was successfully defended and approved on

Examination committee

Signature

Clarification

I clarify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also clarify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Eng. Bashar Farhat

Dedication

To my father, my mother, my family Thank you for
being beside me all the time

Eng. Bashar Farhat

Acknowledgments

I want to thank firstly my supervisor Dr. Walid Hasan for his support, and I want to thank all my teachers. I would like, also, to thank Al-Isra University for permitting me to use the Laboratory of construction materials to perform all the tests needed.

And I want to thank Al-Manseer Company for their great help in conducting the experiment.

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Table of contents

Subject	Page No
Committee Decision.....	I
Clarification.....	Ii
Dedication.....	Iii
Acknowledgments.....	Iv
Table of contents.....	v
List of tables.....	vii
List of figures.....	viii
Abstract.....	ix
Chapter (1) Introduction	
1.1 Wastewater Problem in Jordan.....	1
1.2 Problem Statement.....	3
1.3 Aim of the Study.....	4
1.4 Objectives of the Study.....	5
1.5 Methodology.....	6
1.6 Terminology.	6
1.7 Thesis structure.	7
Chapter (2) Literature review and previous studies	
2.1 Introductions.....	9
2.2 Sludge types from WWTPs	10
2.3 Sludge components.....	14
2.4 Stabilization process of sludge.....	16
2.5 Sludge disposal and recycling methods.....	18
2.6 Sludge as construction materials.....	21
Chapter (3) Research Methodology	
3.1 Introduction.....	28
3.2 Materials.....	28
3.3 Lab equipment's and machines.....	34
3.4 Mix preparation for concrete cubes.....	36
3.5 Mix preparation for cement bricks.....	38
Chapter (4) Results and discussion	

Subject	Page No
4.1 Introduction.....	41
4.2 Test results for S1 mixes.....	41
4.3 Test results for S2 mixes.....	42
4.4 Test results for brick samples.....	43
Chapter (5) Conclusions and recommendations	
5.1 Main conclusions of the study.....	46
5.2 Recommendation for further research.....	47
References.....	48

List of tables

Table No	Table name	Page No
3.1	Aggregate specific gravity	30
3.2	Sieve analysis of aggregate with maximum size 25mm, Foliya	31
3.3	Sieve analysis of aggregate with maximum size 19mm, Adasiya	31
3.4	Sieve analysis of aggregate with maximum size 9.5 mm, Simsimiya	32
3.5	Table 3.5: Sieve analysis of Amman natural sand	33
3.6	Table 3.6: Mixing procedure according to ASTM C192	37
3.7	Table 3.7: Mix proportions for the control mix S1 for one cubic meter	37
3.8	Table 3.8: Mix proportions for the control mix S2 for one cubic meter	37
3.9	Table 3.9: High organic sludge pellets as a replacement of sand in mix S1	38
3.10	Table 3.10: High organic sludge pellets as a replacement of sand in mix S2	38
3.11	High organic sludge pellets as a replacement of sand in mixes for bricks	38
3.12	Mix proportions for the control mix K-0% for one cubic meter	39
3.13	Mix proportions for the control mix K-5% for one cubic meter	39
3.14	Mix proportions for the control mix K-10% for one cubic meter	40
4.1	7-day compressive strength for S1 mix with various sludge content	42
4.2	28-day compressive strength for S1 mix with various sludge content	42
4.3	28-day compressive strength for S2 mix with various sludge content	43
4.4	28-day compressive strength for brick samples with various sludge content	44

List of figures

Figure No	Figure Name	Page No
2.1	Sludge generation and types (Source: European Commission, 2001)	13
2.3	Sludge production and final sludge handling in the 12 EU Member States 1984-2005 [Levlin, 1997]	19
3.1	High organic sewage sludge pellets appearance	29
3.2	Pan-type concrete mixer	35
3.3	Compression testing machine for concrete cubes	35
3.4	Compression testing machine for cement bricks	36

Abstract

The study aimed at finding an alternative solution for the large volume of sludge produced in the wastewater treatment plants in Jordan. The generated quantities of sludge are expected to be around 60 tons of solid per day by the year 2025. This large quantity of sludge is related to the scarcity of land area and high population density represented Jordan sludge problem.

Many researchers worldwide have been trying to explore new and suitable solutions to solve part of sludge problem. One track of these solutions is to use sewage sludge in construction field. The current study presents the usage of dry sewage sludge in the concrete mixtures and in manufacturing brick samples.

. The results showed that the dry sludge retarded the strength development and has more adverse effect on compressive strength when it has higher organic content and its particles became finer.

Keywords: Sludge, Concrete, Replacement, Strength.