

UTILIZATION OF POLYETHYLENE TEREPHTHALATE (PET)  
BOTTLES AS BINDER FOR MAKING BRICKS

THESIS

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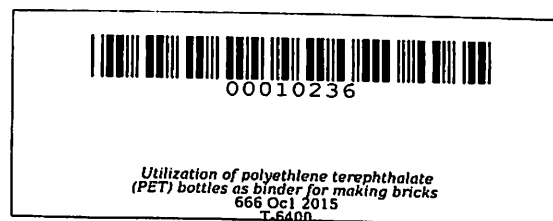
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# **UTILIZATION OF POLYETHYLENE TEREPHTHALATE (PET) BOTTLES AS BINDER FOR MAKING BRICKS**

**Undergraduate Thesis  
Submitted to the Faculty of the  
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## **ABSTRACT**

**OCAMPO, KRISTINE JOY V. and PAMPLONA, JOREN A., Utilization of Polyethylene Terephthalate (PET) Bottles as Binder for Making Bricks.** Undergraduate Thesis. Bachelor of Science in Civil Engineering. Cavite State University. Indang, Cavite. April 2015. Adviser: Engr. Larry E. Rocela

The main objective of the study was to determine if Polyethylene Terephthalate (PET) Bottles can be used as a binder for making bricks. Specifically, it aimed to study the physical and mechanical properties of bricks made with melted PET bottles as its binder.

Different tests were performed in evaluating the mechanical properties of the innovated product. These tests include compressive strength analysis, water absorption, efflorescence, structure, soundness, and hardness test. The cost of brick per piece was also determined in the study.

With respect to physical properties, all bricks produced by utilizing PET bottles as its binder appears to be light brown in color on its exterior surface but the interior after being examined was light grey.

With respect to mechanical properties, all bricks produced by utilizing PET bottles as its binder passed the minimum requirement of 3.45 MPa or 500 psi for compressive strength of non-load bearing masonry units. In terms of water absorption, bricks had a notable result of less than 1%. Other properties of bricks were attained making it a good quality brick.

With respect to cost, the bricks produced by utilizing PET bottles as its binder has a relatively close cost when compared to commercial brick (8 ½" x 4" x 2") which costs Php 20.00.

## TABLE OF CONTENTS

	Page
<b>BIOGRAPHICAL DATA</b> .....	iii
<b>ACKNOWLEDGMENT</b> .....	v
<b>ABSTRACT</b> .....	x
<b>LIST OF TABLES</b> .....	xiii
<b>LIST OF FIGURES</b> .....	xiv
<b>LIST OF APPENDIX FIGURES</b> .....	xv
<b>LIST OF APPENDICES</b> .....	xvii
<b>INTRODUCTION</b> .....	1
Statement of the Problem .....	2
Objectives of the Study .....	2
Significance of the Study .....	3
Scope and Limitation of the Study .....	3
Time and Place of the Study .....	4
<b>REVIEW OF RELATED LITERATURE</b> .....	5
<b>MATERIALS AND METHODS</b> .....	26
Materials .....	26
Tools and Equipment .....	26
Procurement of Materials .....	26
Preparation of Materials .....	28
Preparation of Mold .....	28

Brick Making . . . . .	28
Determination of Physical Properties . . . . .	29
Determination of Mechanical Properties . . . . .	29
Determination of Cost . . . . .	31
<b>RESULTS AND DISCUSSION . . . . .</b>	<b>32</b>
Physical Properties of the Bricks . . . . .	32
Compressive Strength of the Bricks . . . . .	32
Water Absorption of the Bricks . . . . .	37
Efflorescence . . . . .	41
Structure . . . . .	41
Soundness . . . . .	42
Hardness . . . . .	42
Cost Analysis . . . . .	42
<b>SUMMARY, CONCLUSION, AND RECOMMENDATIONS . . . . .</b>	<b>46</b>
Summary . . . . .	46
Conclusion . . . . .	47
Recommendations . . . . .	49
<b>REFERENCES . . . . .</b>	<b>50</b>
<b>APPENDICES . . . . .</b>	<b>51</b>

## LIST OF TABLES

Table		Page
1	Treatment 1 compressive strength . . . . .	33
2	Treatment 2 compressive strength . . . . .	33
3	Treatment 3 compressive strength . . . . .	34
4	Treatment 1 water absorption . . . . .	37
5	Treatment 2 water absorption . . . . .	37
6	Treatment 3 water absorption . . . . .	38
7	Efflorescence of bricks . . . . .	41
8	Cost of materials . . . . .	42
9	Treatment 1 cost of brick per piece . . . . .	43
10	Treatment 2 cost of brick per piece . . . . .	43
11	Treatment 3 cost of brick per piece . . . . .	44

## LIST OF FIGURES

Figure		Page
1	Preparation and properties determination of bricks . . . . .	27
2	Bar graph showing the compressive strength of bricks in MPa . . . . .	35
3	Line graph showing the difference between average compressive strengths of bricks per treatment . . . . .	36
4	Bar graph showing water absorption of bricks . . . . .	39
5	Line graph showing the difference between the average water absorption percentages of bricks per treatment . . . . .	40
6	Line graph showing the difference between cost per brick made from each treatment . . . . .	45

## **LIST OF APPENDIX FIGURES**

<b>Appendix Figure</b>		<b>Page</b>
1	Shredded PET bottles	53
2	Sand and tin cans	54
3	Cooking oil	55
4	Drying of sand	56
5	Weighing of shredded PET bottles	57
6	Weighing of dry sand	58
7	Measuring 50 ml of cooking oil	59
8	Mixing of shredded plastic and dry sand	60
9	Spreading of cooking oil on the container	61
10	Transferring of mixed plastic and sand to the container	62
11	Melting of plastic and sand mixture	63
12	Mixing of melted plastic and sand mixture	64
13	Mixture on liquid state	65
14	Mixing of mixture while cooling	66
15	Treatment 1 removed from the container	67
16	Treatment 2 removed from the container	68
17	Treatment 3 removed from the container	69
18	Brick cutting	70
19	Treatment 1 bricks after cutting	71
20	Treatment 2 bricks after cutting	72



21	Treatment 3 bricks after cutting	73
22	Compressive strength analysis of bricks	74
23	Recording of compressive strength analysis results	75
24	Weighing of bricks before immersing on water	76
25	Immersing of bricks on water for 24 hours	77
26	Wiping off traces of water from the brick before weighing	78
27	Weighing of bricks after immersing on water for 24 hours	79
28	Structure analysis of bricks	80
29	Hardness test of bricks	81
30	Soundness test of bricks	82

## LIST OF APPENDICES

Appendix		Page
1	<b>Computations</b> .....	83
	Compressive strength of $T_1$ .....	84
	Compressive strength of $T_2$ .....	87
	Compressive strength of $T_3$ .....	90
	Average compressive strength of $T_1$ .....	93
	Average compressive strength of $T_2$ .....	93
	Average compressive strength of $T_3$ .....	94
	Water absorption of $T_1$ .....	95
	Water absorption of $T_2$ .....	96
	Water absorption of $T_3$ .....	98
	Average water absorption of $T_1$ .....	100
	Average water absorption of $T_2$ .....	100
	Average water absorption of $T_3$ .....	101
	Computation of gas consumption cost per minute .....	102
	Computation of labor cost .....	103
2	<b>Compressive strength test results</b> .....	104
3	<b>Forms</b> .....	108

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## **INTRODUCTION**

The use of plastic has now become very controversial because of the major environmental impact it is having. The problem with plastic is that it isn't biodegradable and is being overused in an unsustainable manner. We use plastic for a lot of things like packaging, transporting, manufacturing, etc., but do we ever stop to think about what happens to the plastic after we're done using it, or where it ends up? The 'out of sight, out of mind' philosophy is very prevalent when it comes to a lot of environmental issues, especially the issue with plastic.

Polyethylene Terephthalate (PET Bottles) is one of the many kinds of plastic that is hard to recycle. It takes great amount of energy to recycle the plastic bottles by melting it down. Plastic usually degrade in the process and often can't be used for food-grade products again. The researchers think of possible ways in which the PET bottles may be