

**ASSESSMENT OF PHYSICAL AND CHEMICAL  
PROPERTIES OF FOUR CEMENT BRANDS USED IN  
NIGERIA**

**BY**

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**IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
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**CERTIFICATION**

It is hereby certified that this PROJECT, written by Idam Egeleonuwa with matric number 14PCI00744 was supervised by me and submitted to the Department of Civil Engineering, College of Science and Technology, Covenant University, Ota.

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## **DECLARATION**

I, Idam Egeleonuwa, declare that this project is my handiwork. It is being submitted to the Department of Civil Engineering, Covenant University, Ota, Ogun state in the fulfillment of the requirements for a Post Graduate Diploma in Engineering. It has not been submitted before for any degree or examination at this or any other university.

## **DEDICATION**

To my husband, Pastor Abraham Idam, my children; Goodnews, Joshua, David and Royal and also to everyone who love and pray for me.

## **ACKNOWLEDGEMENTS**

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## TABLE OF CONTENT

CERTIFICATION-----	-----i
DECLARATION-----	---ii
DEDICATION-----	--iii
ACKNOWLEDGEMENTS-----	---iv

TABLE OF CONTENT-----

v-vii

LIST OF

TABLES-----viii

LIST OF

FIGURES-----ix

LIST OF

PLATES-----x

ABSTRACT-----

---xi

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND TO THE

STUDY-----1

1.2 STATEMENT OF THE

PROBLEM-----3

1.3 AIM OF THE

STUDY -----3

1.4 SPECIFIC OBJECTIVES OF THE

STUDY-----4

1.5 SCOPE OF THE

STUDY-----4

1.6 SIGNIFICANCE OF THE

STUDY-----4

CHAPTER TWO: LITERATURE REVIEW

2.1 HISTORICAL BACKGROUND OF CEMENT-----5

2.2 MANUFACTURE OF PORTLAND CEMENT-----7

2.3 CLASSIFICATION AND COMPOSITION OF CEMENT-----8

2.4 PORTLAND CEMENT-----9

2.4.1. Composition of Portland cement-----9

2.4.2 Types of Cement-----11

2.4.3. Some Special Cement-----13

2.5 HYDRATION OF PORTLAND CEMENT-----13

2.5.1 Characteristics of Hydration of cement compounds-----14

2.6 CONCRETE-----1

5

2.6.1. Cement  
concrete-----15

2.7 ELEMENT OF CONCRETE  
DESIGN-----16

2.7.1  
Workability-----16

2.7.2 Water cement  
Ratio-----19

2.7.2.1. Mixing water in normal  
concrete-----20

2.7.3  
Batching-----20

2.7.4 Transportation of normal  
concrete-----20

2.7.5 Placing of Normal  
concrete-----21

2.7.6 Compacting Normal  
concrete-----21

2.7.7 Curing Normal  
concrete-----22

2.7.8  
Admixture-----22

CHAPTER THREE: METHODS AND MATERIALS

3.1  
INTRODUCTION-----2  
4

3.2  
MATERIALS-----2  
5

3.2.1 Portland  
cement-----25

3.2.2 Work  
Procedure-----25

3.3 MIX RATIO/ MIX DESIGN  
USED-----29

3.4 MATERIAL  
TESTING-----29

3.4.1 Slump-Flow test-----29

3.4.2 V-Funnel Test-----31

3.4.3 L-Box Test-----31

3.4.4 Initial and Final Setting Time-----33

3.5 SELF COMPACTING CONCRETE (SLUMP  
TEST) -----33

3.6 DETERMINING THE COMPRESSIVE STRENGTH

TEST-----34

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0

INTRODUCTION-----4

2

4.1 RHEOLOGICAL PROPERTIES OF

CONCRETE -----45

4.1.1 Compressive Strength-----47

4.1.2 Split Tensile  
Strength-----48

4.1.3 Flexural  
Strength-----50

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1

SUMMARY-----53

5.2

CONCLUSION-----53

5.4

RECOMMENDATIONS-----54

LIST OF  
REFERENCES-----55

## LIST OF TABLES

Table	2.1:	Main	components	of	Portland cement-----	9	
Table	2.2:	The	Major	Chemical	components	of Portland cement-----	9
Table	2.3:	Characteristics		of	Hydration	of cement compounds-----	14
Table	2.4:	Slump	Test	values	for	various works-----	18
Table			3.1:			Cement Brands-----	25
	Table 3.2:	Dangote				3X-----	25
	Table 3.3:	Lafarge Super				Set-----	26
	Table 3.4:	Lafarge				Classics-----	27
	Table 3.5:	Purechem				cement-----	28
	Table 4.1:	Oxide Composition of the different brands of				cement-----	42
	Table 4.2:	Physical properties of the				cements-----	43
	Table 4.3:	Compressive Strength				Test-----	46
	Table 4.4:	Descriptive Statistics for Compressive				strength-----	46

Table 4.5: Split Tensile  
Strength-----48

Table 4.6: Descriptive Statistics for Tensile  
Strength-----49

Table 4.7: Flexural  
Strength-----50

Table 4.8: Descriptive Statistics for Flexural  
Strength-----50

**LIST OF FIGURES**

Figure 2.1: Diagrammatic representation of the wet  
process-----8

Figure 2.2: Major Ingredients of  
cement-----10

Figure 2.3: Measuring  
Slump-----18

Figure 4.1: Chart showing Rheological  
results-----44

Figure 4.2: Chart showing Compressive  
Strength

result-----46

Figure 4.3: Graph showing Compressive Strength-----47

Figure 4.4: Graph of Split Tensile Test-----49

Figure 4.5: Chart showing the Flexural strength of cement brands used-----51

Figure 4.6: Graph of Flexural Strength-----51

## LIST OF PLATES

Plate 1:	Coarse aggregates	used	(23mm and 19mm)	-----36
Plate 2:	Fine sand	used		-----36
Plate 3:	Concrete batching		in the laboratory	-----37
Plate 4:	Concrete batching		in the laboratory	-----37
Plate 5:			Casting cubes	-----38
Plate 6:	Casting beams in Covenant University Civil Engineering Laboratory			-----38
Plate 7:	Slump Test			-----39
Plate 8:	Slump Collapse			-----39
Plate 9:	L-Box Test			-----40
Plate 10:	V-funnel Test			-----40
Plate 11:	Curing of Cubes			-----41

## **Abstract**

There is not much awareness on the effect of the constituents of cement on the different construction works. Bearing in mind that cement is a major material used widely in construction industry; for buildings, bridges, dams, harbours, aqueducts, highway, and railway foundations etc. The problems associated with cement are as a result of packaging and exposure. This causes the cement to congeal within the shortest time and waste resources. Packaging also affects the effectiveness of the chemical composition and can lead to failure in structures. Lack of understanding of the properties of cement and the behaviour of each element of the bouge compounds tends to cripple the effectiveness of the use of cement. In this study, four cement brands produced, bagged and used in Nigeria tagged; Brands A with grade 42.5, Brands B-D with grade 32.5, but produced by different companies under different conditions were examined and the physical and chemical properties obtained. The compressive strength, Split tensile strength and flexural strength were determined through laboratory measurements. The

overall results showed that Brands having the sufficient presence of constituent oxides, gave the best setting time, consistency, Rheological property, compressive strength and flexural strength. Observations of the tests from the four brands of cement were conducted in the laboratory where precise data were gathered and completely attained.