

FINAL PROJECT

ANALYSIS AND MANUFACTURING COMPOSITE FOR BRAKE
SHOES OF MOTORCYCLE HONDA SUPRA X 125 USING FLY
ASH COAL AND MAGNESIUM OXIDE WITH EPOXY MATRIX



Submitted as a Partial fulfillment of The Requirements for Getting Bachelor
Degree of Engineering in Mechanical Engineering Department

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2013

DECLARATION OF RESEARCH AUTHENTICITY

I assert verily that the research entitles :

**ANALYSIS AND MANUFACTURING COMPOSITE FOR BRAKE
SHOES OF MOTORCYCLE HONDA SUPRA X 125 CC USING
FLY ASH COAL AND MAGNESIUM OXIDE
WITH EPOXY MATRIX**

That made to fulfill some of requirements to get Bachelor Degree of Engineering in Mechanical Engineering Department of Universitas Muhammadiyah Surakarta, as far as I know is not plagiarism of a research that has been published, except the information source that to solve the problems.

Surakarta, July 2013

Researcher



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APPROVAL

The Final Project entitles "**Analysis and Manufacturing Composite for Brake Shoes of Motorcycle Honda Supra X 125 cc using Fly Ash Coal and Magnesium Oxide with Epoxy Matrix**" has been approved by supervisors for getting the Bachelor Degree of Engineering in Mechanical Engineering Department of Universitas Muhammadiyah Surakarta.

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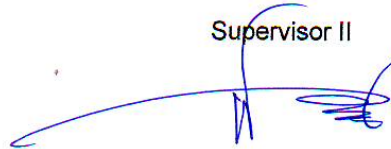
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Dr. Supriyono

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Wijiarto, ST., M.Eng. Sc.

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Secretary of International Program



Wijiarto, ST., M.Eng. Sc.

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The Final Project entitles "Analysis and Manufacturing Composite for Brake Shoes of Motorcycle Honda Supra X 125 cc using Fly Ash Coal and Magnesium Oxide with Epoxy Matrix" has been approved by supervisors for getting the Bachelor Degree of Engineering in Mechanical Engineering Department of Universitas Muhammadiyah Surakarta.

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Head of Department



Ir. Agus Riyanto, MT.



Ir. Sartono Putro, MT.

DEDICATION

This Research paper is dedicated to :

Allah SWT,

Thanks for the best everything that Allah SWT given for me and thanks for love that always make me to never give up to do the best. I believe that Allah SWT will always give me the best for everything.

My beloved Mother (Siti Winarni, S.Pd.) and Father (Priyono, S.Pd., M.Pd.) Thanks for your prayer, love, care, support and affection. You always give me happiness but often I made you disappointed. I am sorry and promise to give you the best in the future.

My Siblings (Wachidah Yuniartika, S.Kep. Ners.) Thanks for your supports. It is make me strong to get something better.

All my family,

Thanks for your prayer, love, support and everthing.

All my friends,

Thanks for your supports and love me.

MOTTO

“Whoever comes out to study, meaning he was in the way of Allah until returning.”

(An – Nahl :43)

"Verily, with every difficulty there is relief."

(Al Insyirah : 6)

"I came, my guidance, my exams, my revision and I won!"

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Assalamu' alaikum Warahmatullahi Wabarakatuh

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The Final Project entitles entitles "Analysis and Manufacturing Composite for Brake Shoes of Motorcycle Honda Supra X 125 cc using Fly Ash Coal and Magnesium Oxide with Epoxy Matrix" can be done because of helping and supporting from other people. Therefore, writer sincerely would like to say thanks and appreciation to :

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9. Those who cannot be mentioned one by one, writer wants to say his thank and appreciation to all of them.

The writer realizes that this research paper is far from being perfect, so the writer sincerely welcomes any constructive comment, criticism, and suggestion from anyone.

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Surakarta, July 2013

The Writer

Bukhori Isak Arifin

TABLE OF CONTENT

TITLE	i
DECLARATION OF RESEARCH AUTHENTICITY	ii
APPROVAL.....	iii
VALIDATION	iv
DEDICATION	v
MOTTO.....	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENT	x
LIST OF FIGURES	xiii
LIST OF TABLES	xvii
ABSTRACT	xviii

CHAPTER I : INTRODUCTION

1.1 Background	1
1.2 Problem Formulation	3
1.3 Problem Limitation	3
1.4 Objectives	5
1.5 Benefit	5
1.6 Writing Systematic	6

CHAPTER II : REVIEW OF LITERATURE

2.1	Review of Literature	8
2.2	Basic Theory	11
2.2.1	Composite	8
2.2.2	MgO (Magnesium Oxide)	12
2.2.3	Carbon Powder Fly Ash	13
2.2.4	Epoxy Resin	14
2.2.5	Braking Characteristic	15
2.2.6	Compaction Process	16
2.2.7	Sintering Process	17
2.2.8	Hardness	18
2.2.9	Wearness	22
2.2.10	Macro Stucture Test	28

CHAPTER III : RESEARCH METHODOLOGY

3.1	Flow Chart of Research	29
3.2	Research Ways	30
3.3	Tools and Material	31
3.3.1	Material of Brake Shoes	31
3.3.2	Tools	34
3.3.3	Testing Instalation	37
3.4	Research Site	40
3.5	Testing Procedure	40
3.6	Data Analysis	46
3.8	Difficulties	46

CHAPTER IV : RESULT AND DISCUSSION

4.1 Result of Test Analysis	48
4.1.1 Hardness Test	48
4.1.2 Macro Photograph Result	52
4.1.3 Oghosi Wear Test	55
4.1.4 Braking Distance Test	57
4.2 Discussion	59

CHAPTER V : CONCLUSION AND SUGGESTION

5.1 Conclusion	61
5.2 Suggestion	62

REFERENCES	63
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APPENDIX	64
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LIST OF FIGURES

	Page
Figure 2.1 Fabrious Composite	10
Figure 2.2 Particulate Composite	11
Figure 2.3 Laminated Composites	11
Figure 2.4 Compaction Process	17
Figure 2.5 Brinell Hardness Test	20
Figure 2.6 Oghosi Wear Testing Method	23
Figure 2.7 Schematic Illustation of Adhesive Wear	24
Figure 2.8 Adhesive Wear Method	25
Figure 2.9 Abrasive Wear Method	26
Figure 2.10 Fatigue Wear Method	26
Figure 2.11 Corosive Wear Mechanism	27
Figure 2.12 Erotion Wear Mechanism	28
Figure 3.1 Flow Chart Research	29
Figure 3.2 Fly Ash Coal	32
Figure 3.3 Epoxy Resin and Hardener	32
Figure 3.4 Magnesium Oxide (MgO)	33
Figure 3.5 Brake Shoes Plate	33
Figure 3.6 Dexton Epoxy and Hardener	34
Figure 3.7 Digital Scales	34
Figure 3.8 Dies	35
Figure 3.9 Press Tool	35

Figure 3.10 Oven	36
Figure 3.11 Vernier Caliper	36
Figure 3.12 Injection	36
Figure 3.14 Infrared Thermometer	37
Figure 3.15 Brinell Tool	37
Figure 3.16 Microscope	38
Figure 3.17 Oghosi Type OAT-U	38
Figure 3.18 Motorcycle Honda Supra X 125	39
Figure 3.19 Load Selection Button	41
Figure 3.20 Stereo Zoom Microscopic	44
Figure 3.21 Load of Brakes	45
Figure 4.1 Macro Photograph of Honda Genuine Parts	48
Figure 4.2 Macro Photograph of Variation 1	48
Figure 4.3 Macro Photograph of Variation 2	49
Figure 4.4 Macro Photograph of Variation 3	49

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ABSTRACT

Brake is one component of a motor vehicle that serves to slow or stop, this is very important in supporting aspects of driving safety. The study aims to investigate the influence of use fly ash coal and Magnesium oxide (MgO) with epoxy matrix as a material brake shoes.

The research was conducted in two phases, namely the field of testing and measuring brake wear in the lab. Metrology using a profile projector, in addition to the Brinell hardness testing is also performed to determine the hardness of each specimens of brake shoes before and after testing higher speeds with the same braking load time, braking distance and the wear rate also increased.

From brinell hardness test results generated that hardness resulting from brake shoes variation has a value of 6.4 BHN and brake shoes variation 2 has a value of 14.8 BHN more great than brake shoes Honda Genuine Parts has a value of 12.3, while for Variation 3 has a value of 10.2 BHN and Variation 4 has value 8.9 BHN is smaller than Honda Genuine Parts brake shoes.

Keywords: *Fly ash coal, magnesium oxide (MgO), brake non-asbestos.*