FINAL PROJECT

THE EFFECT OF CATALYST WITH RESIN 157 BTQN ON THE STRENGTH OF MOTORCYCLE BODY FIBER MODIFIED

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ACKNOWLEDGE

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STATEMENT OF ORIGINALITY AND CONTENT PUBLICATION OF FINAL PROJECT

This is to certify that to the best of my knowledge, the content of this Final Project is my own work. This Final Project has not been submitted for any degree or other purposes.

I certify that the intellectual content of this Final Project is the product of my own work and that all the assistance received in preparing this Final Project and sources have been acknowledged.

Surakarta, 9nd February 2014
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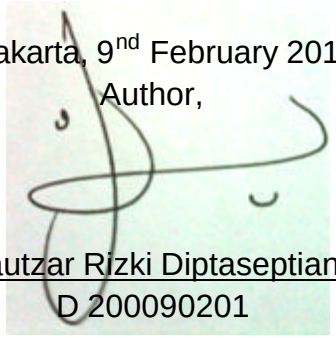

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MOTTO

[5] For indeed, with hardship [will] be ease, [6] Indeed, with hardship [will be] ease (Al-Insyirah: 5-6)

[7]“And remember! Your Lord caused to be declared (publicly): “if ye are grateful, I will add more (favors) unto you; but if ye show ingratitude, truly My punishment is terrible indeed.” (Q.S. Ibrahim: 7)

Allah will not change the condition of a people until they change what is in themselves. (Q.S. Ar-Ra’d : 11)

LOSTA MASTA, make our life more colorful

SMILE is not EVERYTHING, but EVERYTHING without SMILE is NOTHING

Man Jadda Wa Jada

Man Arofa Bu’da Assafari Istaa’dda

Enjoying your work is essential. If your work becomes an expression of your own ideas, you will surely enjoy it (Soichiro Honda)

FOREWORD

Praise to Allah SWT the lord of the world, who has given mercy and blessing so that this Final Project with a title **THE EFFECT OF CATALYST WITH RESIN 157 BTQN ON THE STRENGTH OF MOTORCYCLE BODY FIBER MODIFIED** can be resolved. This Final Project is structured as a condition for obtaining a bachelor's degree of Mechanical Engineering Department International Program in Automotive Engineering of Universitas Muhammadiyah Surakarta.

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I hope this thesis can contribute to the scientific academic community, practitioners in the field of building materials and benefit the wider community in general. The assistance that was given may receive just reward from Allah SWT.

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LIST OF SYMBOL

W_1	= Activated Energy (J)
W_2	= Absorbed Energy (J)
g	= Gravitation
?	= Arm length (m)
a	= Beginning angle
ß	= Ending angle
K	= Impact value (j/mm^2)
A	= Cross sectional area (mm^2)
s_b	= Bending Stress (MPa)
P	= Max Load (N)
L	= Distance between supporter (mm)
b	= Width (mm)
d	= Thick (mm)
S	= Tensile strength
P	= Load
A_0	= Cross section
E	= Modulus elasticity (kg/mm^2)
s_u	= Ultimate Stress (MPa)
e	= Strain

ABSTRACT

Currently, many demands from consumers or motorcycle fans to have a motorcycle with good looking or appear attractive and make their motorcycle body are modified as they want. Fairly easy and quick to make is one benefit of this body modification that made by 3 main materials (resin, catalyst and fiberglass). A catalyst is a substance that can speed up the reaction towards equilibrium. The more the composition of catalyst, the less time is required to react. The objective of this study is to determine the effect of catalyst on the strength of material.

Testing is done by changing the catalyst composition in 4 variations (2.5%, 5%, 10%, and 20%) of resin 157 BTQN. Each variation is tested by impact test that based on ASTM D-256, bending test that based on ASTM D-790 and tensile test that based on ASTM D-638. Analysis is conducted after got data of testing result.

The result of the testing of each variation has different strength (mechanical properties) that influenced by catalyst. The highest number of impact was got from variation of 2.5 % catalyst by 0.078 J/mm^2, bending stress from 2.5% of catalyst by 199.86 MPa, ultimate tensile strength from variation of 5% by 76.64 MPa and modulus young from variation of 2.5% by 81.15 kg/mm^2. The ability to withstand the force and the mechanical properties such as ductility, stiffness, hardness etc can be determined by the data gotten from the test result.

Key words: catalyst, fiberglass, resin, body fiber, impact, bending, tensile.