

**Republic of the Philippines**

**Department of Education**

NATIONAL CAPITAL REGION

SCHOOLS DIVISION OFFICE OF QUEZON CITY

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**The potential of latex paint sawdust and antifreeze coolant as an alternative for making tire sealant**

A Completed Innovation Project Presented to the

Technical Vocational Livelihood Department of

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Chapter 1

**INTRODUCTION**

The automotive industry has been exploring sustainable and innovative solutions to deal with the problems when it comes to tire maintenance and repair. Although there are several advancement when it comes to this are of automotive, the potential use of Eco friendly material in tire sealant development has gather attention. This research aim to determine the possibility of latex paint, sawdust, and antifreeze coolant as alternative ingredient for developing a sustainable and effective tire sealant. Tire sealant have often depend on plastics synthetic fibers and synthetic rubbers as well as chemicals compounds such as water, mica flakes, hydrated bentonite clay, etc, that can cause serous health issue, this materials are used to obtain a better sealing properties, however, The race for using Eco friendly materials to lessen the use of toxic chemicals are the trend when it comes to tire sealant, there is an increase of interest in exploring alternative materials that can contend to the performance of tire sealant that are being sold in the market, while negating the environmental impact.

Latex paint gain the attention of the researcher because it has dry and seal qualities, latex paint is a polymer dispersion that has potential on producing a sustainable tire sealant. Sawdust is a powder particle of wood produced by sawing, sawdust can be high quality fuel that has capability to fill and seal a puncture. Antifreeze is usually used in automotive system called cooling system to regulate temperature, that can affect the texture and performance of tire sealant.

The purpose of this study is to figure out the mechanical, chemical, and environmental properties of tire sealant made of sawdust, anti freeze coolant, and latex paint. By investigating the advantage and disadvantage of these materials, the research aim to give information on the possibility of using such alternative for making effective and environmental friendly tire sealant. The outcome will help reduce the negative effect of tire maintenance in our environment while maintaining or enhancing the performance of tire sealant.

**BACKGROUND OF THE STUDY**

Tire sealant are mostly compose of petroleum based, chemicals that can be harmful to people and environment making it one of the concern when making tire sealant. In addition the production of tire sealant also contributes to carbon emission one of the reason for global warming. For this reason making alternative materials on making tire sealant become a trend, latex paint, sawdust and antifreeze coolant present possibility of making great tire sealant. Latex paint provide flexibility and adhesive property, sawdust give natural filler for puncture, antifreeze coolant can prevent freezing and enhance flexibility,

This study explores the potential of alternative tire sealant composed of latex paint, sawdust, and antifreeze coolant. The motivation behind this research is to develop an Eco friendly, cost effective and sustainable solution for tire puncture repair while maintaining or enhancing performance standards. This study aims to investigate the potential of these components on making efficient and environmentally friendly tire sealant as well as cost effective while maintaining standard performance. Reviewing existing literature on tire sealant and alternative materials such as latex paint, saw dust, and antifreeze coolant will provide data for understanding the potential of this components as well as the limitations. Analyzing previous studies on similar topic will help identify the issue this research aim to address.

**SIGNIFICANCE OF THE STUDY**

The outcome of this study will be beneficial to these following beneficiaries.

Tire manufacturer. This study will help to develop Eco friendly and cost effective materials that can negate carbon emissions.

Car companies. This study can help implementing ECO friendly tire sealants as well as offer car companies environmental sustainability, meeting consumers demand for Eco friendly products, which cab help positive impact brand image and customer loyalty

Car owners. This study will provide option for the car owners on which are more suitable for there preference.

Mechanics. This study can help mechanics in terms of cost-effective and material accessibility, as they often have difficulties getting specialized products.

Environment. This study will help to lessen the carbon emission on making tire sealant to minimize environmental impact.

AS Students. This study will help the students to have good topic example when it comes to automotive.

Future researchers. Trough the help of this research, they can use this study as future reference when creating or improving an existing research.

**SCOPE AND DELIMITATIONS OF THE STUDY**

This study aim to determine the potential of these materials as a low cost alternative to commercial tire sealant. The study will involve testing effectiveness of the DIY tire sealant in sealing puncture and preventing air leaks in tires. The study will also evaluate the safety of the DIY tire sealant and their impact on the environment.

The study will only focus on the use of latex paint, sawdust, and antifreeze coolant as alternative material for making tire sealant. The study will not include other materials or methods on making tire sealant. The study will also not evaluate the effectiveness of commercial tire sealant or DIY alternative. The study will be limited to laboratory testing and will not involve field testing or long term evaluation for DIY tire sealant. This research will be conducted on JCMPSHS.

**STATEMENT OF THE PROBLEM**

This research aim to determine the feasibility of latex paint, sawdust and antifreeze coolant as alternative ingredients for developing a sustainable tire sealant.

**RESEARCH QUESTIONS**

1. What is the difference in environmental impact between alternative tire sealant and traditional tire sealant.
2. How does the sealing property of alternative tire sealant compare to traditional tire sealant.  
     
   3.What is the different cost between alternative tire sealant compare to traditional tire sealant.

4.How does the life span and durability of alternative tire sealant compare to traditional tire sealant.