

RECLAIMED RUBBER FROM BUFFING DUST-BY
MEANS OF A SIMPLE METHOD OF PLASTICIZATION

පුස්තකාලය
මොරටුව විශ්ව විද්‍යාලය, ශ්‍රී ලංකාව
මොරටුව.

A Research Project Thesis Submitted as
Part of the Degree of Master of Science



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

J. MAHESH PRIYANTHA FERNANDO . B.Sc. (SRI LANKA)

59198

UM Thesis Coll.

Polymer Technology Division 678 "92"
Department of Chemical Engineering 678 . 4
University of Moratuwa
March 1992

59198

ABSTRACT

A simple method of reclaiming rubber from buffing dust, the major rubber reject of Sri Lankan tyre retreading rubber industries is identified. In the procedure, buffing dust which has been swollen previously with SM 20, the aromatic rubber process oil in various proportions is plasticized with 1 part by weight of Zinc salt of Pentachlorophenol, the common peptizer on a warm two roll mill temperature 70° - 80°C. The effects produced by the variables such as amount of oil absorbed, and time of mastication on the degree of plasticity of the softened buffing dust mass are investigated and from the results a simple efficient method of reclaiming rubber from buffing dust is chosen.



University of Moratuwa, Sri Lanka.

Electronic Theses & Dissertations

www.lib.mrt.ac.lk

A sample of the reclaimed rubber mass, produced by this particular method, when it is compounded with ingredients and blended with Natural rubber, show valuable technical properties during processing and in vulcanisates.

ACKNOWLEDGEMENT

Firstly, I wish to thank the Management of the Industrial Development Board for sponsoring me for the M.Sc. Course in Polymer Technology which enabled me to carry out this Research Project.

I wish to express my sincere thanks to the Supervisor of this project, Mr. K. Subramaniam, Senior Lecturer, Polymer technology Division for his guidance and assistance given to me throughout this project.

My thanks are due also to Dr. Kamal Fernando, Head, Polymer Technology Division and Dr. (Mrs.) L. Sivagurunathan, Senior Lecturer, Polymer Technology Division for their encouragement and assistance given in this project.

I wish to thank the staff of the Polymer Technology Division, University of Moratuwa, who are too numerous to mention individually, for their co-operation extended to me during this project.

C O N T E N T S

		<u>Page</u>
	ABSTRACT	I
	ACKNOWLEDGEMENT	II
CHAPTER 1.0	INTRODUCTION	1
1.1	RECLAIMED RUBBER	
1.2	HISTORY OF THE RECLAIMED RUBBER INDUSTRY	
1.3	APPLICATIONS OF RECLAIMED RUBBER	
1.4	CONSUMPTION OF RECLAIMED RUBBER IN RUBBER PRODUCTS	
1.5	ADVANTAGES AND DISADVANTAGES OF RECLAIMED RUBBER	
1.6	TYPES OF RECLAIMED RUBBER	
1.7	BUFFING DUST AND ITS SOURCES	
1.8	CURRENT USES OF BUFFING DUST IN RUBBER INDUSTRIES IN ITS POWDER FORM	
1.9	AIM OF THE PROJECT	
1.10	METHOD OF APPROACH	
CHAPTER 2.0	PLASTICIZATION OF BUFFING DUST	14
2.1	INTRODUCTION	
2.2	EXPERIMENTAL	
2.3	DISCUSSION OF THE TEST RESULTS OF plasticization	

Contd. ..

Contents Contd. ..

	<u>Page</u>
CHAPTER 3.0	EVALUATION OF RECLAIMED RUBBER MASS 20
3.1	INTRODUCTION
3.2	EXPERIMENTAL
3.3	DETERMINATION OF PROPERTIES OF RECLAIMED RUBBER MASS COMPOUND
3.4	VULCANISATES PROPERTIES OF THE COMPOUNDS
3.5	TEST RESULTS
3.6	DISCUSSION OF THE RECLAIMED RUBBER MASS EVALUATION TEST RESULTS
CHAPTER 4.0	GENERAL DISCUSSIONS AND CONCLUSIONS 33
4.1	PLASTICIZATION OF BUFFING DUST MASS
4.2	CHARACTERIZATION OF RECLAIMED RUBBER MASS
4.3	CONCLUSION
4.4	SUGGESTIONS FOR FURTHER WORK



University of Moratuwa, Sri Lanka.
Electronic Theses & Dissertations
www.lhb.mrt.ac.lk
