REPLACEMENT OF SILICA IN COLOUR SHOE SOLING RUBBER COMPOUND BY SEMI REINFORCING KAOLIN

BY

Lalith Abeysinghe

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Department of Chemical & Process Engineering
University of Moratuwa

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Supervisor : Dr. Shantha Walpalage
University of Maratuwa

Contents

Chapter 01
Introduction **Page No**

1.1 Introduction..... 02
1.2 Aim of the project..... 03
1.3 Method of approach..... 04

Chapter 02
Historical review of shoe soling materials

2.1 Historical review..... 06
2.2 Shoe soling materials..... 06
2.3 World's usage of soling materials..... 08
2.4 Densities of shoe soling materials..... 09
2.5 Physical properties of resin rubber shoe soling 09
2.6 Silica as reinforcing filler..... 12
2.7 Importance of Silane coupling agents..... 15
2.8 Extrusion as a critical process in resin rubber soloing sheets manufacture..... 20
2.9 Painting technology of resin rubber sheets..... 23

Chapter 03
Experimental

3.1 Raw materials used in manufacturing of resin rubber sheet..... 26
3.2 Formulations developed for beige colour products..... 28
3.3 Method employed 32
3.31 Rubber compounding..... 33
3.32 Mixing methods..... 33
3.33 Preparation of blank sheet for moulding..... 34
3.34 Compression moulding..... 35
3.35 Surface preparation for painting..... 35
3.36 Painting..... 35
3.4 Testing methods for paint film..... 37
3.5 Testing methods for compound and vulcanizates..... 40
3.51 Dynamic properties of compound..... 40
3.52 Hardness of Rubber..... 40
3.53 Determination of density..... 42
3.54 Determination of Abrasion Resistant..... 46
3.55 Tensile Strength..... 50

Chapter 04
Discussion of the results and conclusion

4.1 Results of experiments and discussion..... 56
(a) Introduction of new testing method..... 59
(b) Exploration of semi reinforcing filler..... 60
4.3 Conclusion..... 62
4.4 Further work..... 62
4.5 References..... 63

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Abstract

In this project, attempts have been made to identify the reasons for product failure of beige colour rubber compound due to abnormal stretching at my working place, Arpitalian compact Soles Pvt Ltd, export processing Zone, Biyagama. With analysis of all the compounds and their ingredients , especially with comparison with black colour compounds, It was identified that Silica in the beige colour compound formulation has caused this problem. The accurate problem identification has helped to develop remedies to overcome.

Firstly, the recognized international standards for resin rubber shoe soling sheets and the limitations of these standards were studied in depth. Then the contribution from each ingredient in the rubber compound formulation was taken in consideration and developed a formulation to obtain desired physical and chemical properties.

In this approach, the ingredients of resin rubber compounds were studied in depth in order to find out there contribution to the final properties of vulcanizates. This helped to identify micro level reactions and able to find out cause of abnormal stretching defect. The production processes, raw materials and technologies adopted were also studied in depth to understand their effects to end product.

With the determination of physical properties of products, it was identified the elongation at break of beige products are 68% higher than the black colour products. The experiments revealed that silica in the beige colour compound has brought this adverse effect. therefore, as a remedy for this problem, the silica was replaced with a new type of semi reinforcing kaolin filler lowering the cost of the beige colour rubber compound by considerable percentage and eliminating the quality problem. .

List of tables

Page No

2.1 SATRA recommendations for resin rubber soling sheets..... 11

2.2 Different classes of coupling agents..... 17

2.3 General guidelines on selection of silanes..... 18

2.4 Characteristics of paint ingredients..... 24

3.1 Failed beige colour rubber compound formulation..... 28

3.2 Carbon black filled rubber compound formulation..... 29

3.3 Silane coupling agent added beige colour formulation..... 29

3.4 Formulation with high curative dosage..... 30

3.5 Kaolin (Unichem) filled beige colour formulation..... 30

3.6 Kaolin with minor percentage of free silica filled beige formulation... 31

3.7 Requirements of compound dynamic properties..... 34

3.8 Activity of each station of painting line..... 36

3.9 Testing method of coated film..... 37

4.1 Developed formulations..... 56

4.2 Analytical properties of reinforcing fillers..... 57

4.3 Vulcanizate properties with cure time..... 58

4.4 Vulcanizate properties of developed formulations..... 60

4.5 Analytical properties of different Kaolin types..... 61

List of Figures

		Page No
2.1	World usage of soling sheets 2006	08
2.2	Projected usage of soling sheets 2007	08
2.3	Extruder and die characteristics	21
2.4	Extruder die geometry	22
2.5	Painting rollers movement – reverse coating	23
2.6	Painting rollers movement- forward coating	23
3.1	Banbury- compounding section	32
3.2	Extruding section	32
3.3	Compression moulding section	32
3.4	Painting section	32
3.5	Rheogragh	34
3.6	Painting line lay out	36
3.7a	Hardness measuring apparatus	41
3.7b	Density measuring apparatus	44
3.7c	Abrasion determination machine	47
3.7d	Dumb –bell type shape sample and its dimensions	51