

## **INFLUENCE OF KRAFT LIGNIN ON THE PROPERTIES OF RUBBER COMPOSITES**

MATSHIDISO MAKHALEMA<sup>1</sup>, PERCY HLANGOTHI<sup>1</sup>, SETUMO VICTOR MOTLOUNG<sup>2,3</sup>  
LEHLOHONOLO FORTUNE KOAO<sup>4</sup>, TSHWAFO ELIAS MOTAUNG<sup>3,5</sup>

<sup>1</sup>NELSON MANDELA UNIVERSITY, SOUTH AFRICA

<sup>2</sup>WALTER SISULU UNIVERSITY

<sup>3</sup>SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY, SOUTH AFRICA

<sup>4</sup>UNIVERSITY OF THE FREE STATE, SOUTH AFRICA

<sup>5</sup>UNIVERSITY OF SOUTH AFRICA, SOUTH AFRICA

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### **ABSTRACT**

The influence of lignin content on reclaimed rubber (RR)/natural rubber (NR) blend composite properties has successfully been studied. Scanning electron microscopy (SEM) were used to understand morphology. Fourier-transform infrared spectroscopy (FTIR) for the possible chemical interaction, whereas thermogravimetric analysis (TGA) and tensile tester were used to predict strength and elongation for possible practical applications. The results indicated that the presence of lignin forms cavities which seemed to arise from complex interactions of the blend with the lignin. Those cavities dominated tensile fractured surface and the increase in lignin indicated inconsistencies of interfacial interactions. Lignin RR/NR blend composites revealed a drop in tensile strength and shift in glass transition temperature, except for the highest lignin containing blend composite. More active interactive constituent of the blend appeared to be NR. The interaction has not favored the thermal stability and crosslinking density.

**KEYWORDS:** Blend composites, polymer composites, lignin, biomass, lignin-polymer composites.

### **INTRODUCTION**

Recently, there has been renewed interests in the utilization of lignocellulosic components such as cellulose lignin and hemicellulose to advance green applications of materials (Mohomane et al. 2017, Sibiyi et al. 2018). Some researchers compared modified characteristics of celluloses from different sources (Linganiso et al. 2019), whereas some tested potential of the modified surfaces in different polymeric matrices (Sibiyi et al. 2018). Of more interest





















