CHAPTER 5
CONCLUSION AND RECOMMENDATION

In this research, silica was prepared from RHA by the precipitation method and used as a filler in the rubber matrix. RSi had a purity of up to 99% and had a typical amorphous form. When comparing the RSi with CSi, it was found that RSi had a smaller particle size and a higher surface area than CSi.

Based on the mechanical properties of all rubber composites, it was found that the addition of RSi combined with VTES to NR and the addition of RSi to the blend showed higher tensile strength and elongation at break than RSi added to NR only at 5 phr. Where the addition of RSi to the blend showed higher tensile strength and elongation at break than the addition of RSi combined with VTES to NR. The addition of RSi to the blend at a content of 5 phr was used as a polymer for the study of the addition content of polymer to cement.

The polymer was added to cement at the polymer to cement (P/C) ratios of 0.00, 0.05, 0.10, and 0.20. The tensile strength of ordinary mortar increased with increasing P/C ratios until it reached a P/C ratio of 0.10. On the other hand, the flexural and compressive strengths of ordinary mortar decreased. When comparing the PMM at the P/C ratios of 0.05, 0.10, and 0.20, the PMM at a P/C ratio of 0.10 showed the highest values in flexural and compressive strengths. For the water absorption, the addition of polymer to cement reduced the water absorption of ordinary mortar with increasing P/C ratios until it reached a P/C ratio of 0.10.

According to the quality requirements for PMM in JIS A 6203, the polymer was added to cement at a P/C ratio of 0.10, showing the properties met the minimum requirements in the flexural and compressive strengths. For the water absorption, the 0.10PMM met this property only at 1 hour of immersion time. However, the use of this application still requires further research on several properties and practical use in the long-term.