

CONCLUSIONS

The purpose of this study was to verify the possibility of using natural zeolite as alternative filler for natural rubber industry, especially in rubber mat for livestock. The incorporation of natural zeolite and CaCO_3 in natural rubber compounds decreased scorch time and optimum curing with increasing filler loading, whereas rice husk ash (RHA) showed the opposite trend. The hardness of all vulcanizates increased with increasing filler loading, while tear strength of the vulcanizates slightly decreased. Vulcanizates filled with natural zeolite gave a moderate hardness, but the greatest tear strength. Unlike CaCO_3 -filled rubber, the abrasion resistance of the vulcanizates filled with natural zeolite and also filled with RHA can be improved slightly with filler loading. The compression set of vulcanizates impaired with increasing filler loading. According to what we observed in mechanical properties of all filled-vulcanizates, it could be suggested that natural zeolite-filled vulcanizates had a comparable mechanical properties to those of vulcanizates filled with RHA, however, they both showed greater mechanical properties than CaCO_3 -filled vulcanizates. Moreover the natural zeolite-filled vulcanizate exhibits the greater heat stability than CaCO_3 - and RHA-filled vulcanizates. At the particular filler loading at 200 phr, it is found that natural zeolite-filled and RHA-filled vulcanizates have smaller percentage change in mechanical properties than CaCO_3 -filled vulcanizates. The natural zeolite compound gives high tear strength and moderate abrasion resistance. One may still consider the use of natural zeolite as filler in the rubber industry for economic and ecological reasons.