PROPERTIES OF NATURAL RUBBER BLENDED WITH ACRYLIC RUBBER:
FILLED AND UNFILLED BEHAVIOR

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Naturally occurring cis-1,4-polyisoprene; Hevea Brasiliensis, is widely available and importantly commercial rubber in Thailand. With some outstanding properties including high strength and resilience, natural rubber (NR) is effectively applicable on various products as known. However, the existence of weak properties on aging resistance limits some specific applications of NR when it was used alone in the product. Therefore, the concept of adding synthetic rubber in NR product like acrylic rubber (ACM) that has excellent properties of heat, oil and ozone resistance is raised in this work. Dynamic properties including viscous modulus, elastic modulus and tan δ at the variation of frequencies and temperatures of the blended gum and also carbon black-filled ACM/NR blends were determined using Rubber Process Analyzer (RPA-2000, Alpha Technologies). It was found that ACM has lower viscous modulus than NR with the increase of frequency. The reduction of viscous modulus and elastic modulus of NR were observed with the increase of ACM content in the blend. It is remarkable that tan δ of the only blend of ACM30/NR70 was observed to increase higher than that of NR, especially at high frequency. This suggests that the easier processing of NR product which is one of advantages is obtained by adding ACM 30% (W/W).