P59. EFFECT OF RADIATION ON MECHANICAL PROPERTIES OF FKM RUBBER BEFORE AND AFTER VULCANIZATION

Heloísa Augusto Zen[1,*], Ademar Benévolo Lugão[1]

[1] *Instituto de Pesquisas Energéticas e Nucleares (IPEN-CNEN/SP), Brazil*
** helozen@ipen.br*

In this work was studied the effect of radiation process on mechanical properties of FKM rubber, before and after vulcanization. The elastomer used was a fluorinated type, with 70% of fluor in its composition. The compound of fluoroelastomer (FKM) was based on Viton® by DuPont which is an elastomer that has low fuel permeation allowing be used as sealant and especially as o-ring product. The effect of radiation process in rubber can induce an increase in crosslinking density. The FKM was submitted to gamma radiation at 5, 10 and 20 kGy. The vulcanization was carried out at 195°C in a thermopress and thin films were obtained. The characterization techniques used were mechanical tests (stress – strain) to evaluated elongation and tension at break, rheometric properties to analyze maximum and minimum torques, and degree of swelling. By elongation at break was possible to observe an increase in crosslinking density when the vulcanization was carried out after the irradiation process, on the other hand the degradation process was verified when FKM was submitted to radiation process after the vulcanization.