

# THE DEGRADING EFFECTS OF THE RADIATION ON THE PROPERTIES OF BUTYL RUBBER COMPOUNDS

Reference	Presenter	Authors (Institution)	Abstract
04-069	Sandra Regina Scagliusi	Scagliusi, S.R. (Institute of Energy and Nuclear Research); Cardoso, E.C. (IPEN / CNEN - SP); Lugão, A.B. (Instituto de Pesquisas Energéticas e Nucleares);	Polymeric materials (plastics and rubber) have been contributing in a continuously and raising way for the generation of litter and industrial wastes discarded in landfills. Gamma ionizing radiation has capacity for changing structure and properties of polymeric materials and can be applied to almost all types of polymers; irradiation is an expectation for problem-solving of rubber wastes management that can be utilized as raw-materials or chemical additives. butyl rubber has excellent mechanical properties and oxidation resistance, as well as low gas and water vapor permeability. At the initial stage of irradiation the degradation of butyl rubber occurs predominantly via random chain-scission This work aims to the introduction of a new recovery technique for butyl rubber, by using processing via gamma-rays followed by shear. 5 kGy, 15 kGy, 25 kGy, 50 kGy, 100 KGy, 150 kGy and 200 KGy doses were used, in order to study the feasibility of butyl rubber for recycling. Doses within 5 to 25 kGy applied to butyl rubber and pointed toward a less degraded material.

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