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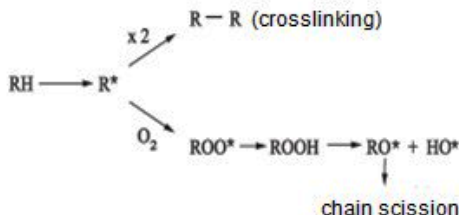
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Effect of gamma-radiation on thermal ageing of butyl rubber compounds

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Butyl rubber has a comprehensive use in sealing systems, especially in tires inner tubes, due to their low permeability to gases. So, it is required that butyl rubber compounds show a better performance, more and more. Butyl rubber is provided with excellent mechanical properties and oxidation resistance. Besides showing these properties, radiation exposures impart modifications in physical-chemical and morphological properties on butyl rubber materials. When exposed to gamma-radiation, rubbers suffer changes in their mechanical and physical properties, caused by material degradation. The major radiation effect in butyl rubbers is chain-scission; besides, ageing promotes too the same effect with further build-up of free radicals. This work aims to the study of gamma-radiation in physical-chemical properties of butyl rubber subjected to thermal ageing. Doses used herein were: 25 kGy, 50 kGy, 100 kGy, 150 kGy and 200 kGy. Samples were evaluated before and after ageing according to traditional essays, such as: hardness, tensile strength and elongation at break. From accomplished assessments, it is possible to affirm that at doses higher than 50 kGy it was observed a sharp decreasing in butyl rubber physical-chemical properties, before and after exposure to ageing.



Biography

Sandra Regina Scagliusi: Great experience with elastomers. Upgraded in recovering of rubbers, in general, specially dealing with butyl and halo-butyl rubbers (chlorine and bromine). She is deeply involved with irradiation, recycling, de-vulcanization, micro-wave. She developed a new process of rubbers recovering via radiation and mechanical shear. She has been dedicating in research toward environmental area in recycling of solid materials and elastomers. Proved experience in research and quality control laboratories.

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