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SENSITIZERS ON RADIATION VULCANIZATION OF NATURAL RUBBER LATEX: STABILITY AND VULCANIZATION DOSE.

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Natural rubber latex can be vulcanized by ionizing radiation. The IR spectra of natural rubber latex without sensitizer showed the formation of $-C=O$ (1770 cm^{-1}) after de irradiation in the presence of air as consequence of oxidation reactions. The effect of CCl_4 and n-butyl acrylate as a sensitizer for the radiation vulcanization of 60 % DRC natural rubber latex with gamma rays, was studied relating to maximum tensile strength. The vulcanization dose is 200 kGy for natural rubber latex and it decreases to 40 kGy and to 9 kGy in the presence of CCl_4 / potassium laurate (surfactant agent) and n-butyl acrylate / t-butyl hydroperoxide (co-sensitizer), respectively. Both n-butyl acrylate and t-butyl hydroperoxide tend to destabilize natural rubber latex. The most effective stabilizer is KOH. The KOH modifies the surface materials by ionization of carboxyl groups and it prevents the interaction with n-butyl acrylate. Therefore the best sequence of reagent adding is: a) 2 phr of 10 % of KOH; b) 0,1 phr of t-butyl hydroperoxide; c) after 16 hours: 3 phr of n-butyl acrylate; d) after 2 hours: natural rubber latex irradiation. Surgical gloves made by this process will be showed.

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