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## Using Gamma Irradiation to Modify Properties of Polysaccharides (Guar Gum)

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Radiation processing of material is one of most recent technology used in modification of material properties. The aim of this work was to determine the effect of gamma irradiation on the Polysaccharides Viscosity and Molecular Weight, as definition of Guar Gum. Its series of glactomanene ( glactos + manose). (1-2-,3 ).Guar Gum powder was the main material and Co-60 irradiator facility as main Tequineque. For gamma - ray source of required doses, 2.5,

5 .7.5, 10, 20, 30, 40 and 50 kGy. Viscosity of the aqueous suspensions of irradiated Guar Gum at different concentrations (0.1–0.5%) was measured, also it measured for solutions made of irradiated powder. Results used to calculate the difference occur in molecular weight .in order to determine the irradiation effect in the material. The monitored rheological parameters showed (non- Newtonian Behavior) of the samples which processed by gamma irradiation. The decrease tendency of the viscosity by irradiation of samples under study (different concentrations) and compared with control also for irradiated powder decrease of the concentration as well has been noticed.

From results evaluation concluded that the viscosity values for all studied concentrations decreased by irradiation. This aspect suggests a depolymerization phenomenon of the aqueous Guar Gum solutions. This study contributes to the knowledge of the viscoelastic properties of Guar Gum as powder or aqueous solution, with application for food, agriculture, medical products, Petroleum and construction.

### Country or International Organization

Sudan

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