

Effect of gamma irradiation on the degradation of carboxymethylcellulose solution

최종일, 김재훈¹, 송범석¹, 윤요한¹, 김태운², 이광원³, 변명우¹,
이주운^{1,*}

한국원자력연구원; ¹한국원자력연구원 방사선과학연구소;

²리온바이오텍; ³을지대학교 의과대학

(sjwlee@kaeri.re.kr*)

In this study, the effects of a gamma irradiation on the viscosity of the carboxymethylcellulose (CMC) solution were investigated, and the methods to control the degradation of the CMC caused by an irradiation were developed. The viscosity of the CMC solution was decreased with an increase in the irradiation dose, but the extent of the degradation by an irradiation was found to decrease with an increase in the CMC concentration in the solution. An addition of vitamin C as a radical scavenger to the solution was shown to be effective in preventing the decrease of the viscosity of the solution. Also, in the case of an irradiation at -70°C , the decrease of its viscosity was efficiently inhibited. The degradation of CMC in the solution was confirmed by the molecular weight distribution.