

# Ozonation of Chitosan on The Continuous System

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Chitosan is a natural polymer that can be obtained from chitin deacetylation. Even though chitosan has many benefits, because of its high molecular weight, the application is limited. To reduce the high molecular weight of chitosan, chitosan needs to be degraded. Chitosan degradation can be done by ozonization method on the continuous system. The research purposes are to determine the effect of ozone gas flow rate, ozonation reaction temperature and agitator speed on the chitosan degradation process. The initial molecular weight of chitosan used is as high as  $2.8 \times 10^6$  Da and the Deacetylation Degree (DD) of 81.81 %. The degradation process produced low molecular weight chitosan (LMWC) with the molecular weight of 2,034 - 93,764 Da, chitobiose, and the derivatives of glucosamine. Increasing ozone gas flow rate produces LMWC which has lower molecular weight. The ozonization temperature gives the contrary effect with the ozone gas flow rate. Decreasing in ozonation reaction temperature gives LMWC which has lower molecular weight. But, increasing agitator speed gives an effect on increasing the chitosan molecular weight reduction rate.