

#25

DISSOLVING HEAT INDUCED PROTEIN GEL CUBES IN ALKALINE SOLUTIONS UNDER NATURAL AND FORCED CONVECTION CONDITIONS

Ji Yeon Yoo¹, Xiao Dong Chen^{1*} & Ruben Mercade²

¹ *Food and Bioproduct Processing Cluster, Department of Chemical and Materials Engineering, The University of Auckland, 20 Symonds Street, Auckland City, New Zealand*

² *Department of Chemical Engineering, Cambridge University, New Museums Site, Pembroke Street, Cambridge, U.K.*

* Corresponding author: d.chen@auckland.ac.nz

ABSTRACT

Heat-induced whey protein gels (HIWPG) were made into cube shapes and dissolved in sodium hydroxide (0.25-0.50 wt %) under different temperatures, agitation speeds, and with or without additional chemicals. Pre-soaking of HIWPG with KCl (0.20 w/w %) was found to produce high rate of dissolution initially for about 30mins. As the pH of the solvent reached towards its pI (5.2), the rate of dissolution decreased. At 40°C at 100rpm, the concentration of HIWPG dissolved in 0.50wt% NaOH solution was found to be the highest. Particulate releases were evident, indicating the 'dissolution' process has both the pure molecular dissolving and particulate removal. Traces of particulate releases have been observed during dissolution process. The size of the particles released reduced when temperature and agitation speed were elevated, except at room temperature.