Equilibrium Moisture Characteristics of Wheat Flour at Higher Temperatures

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ABSTRACT

Equilibrium moisture content (EMC) of wheat flour was obtained by equilibrating them at 10-78% equilibrium relative humidity (ERH) at 50, 60, 70, 80 and 90 °C above saturated inorganic salt solutions. Seven EMC-ERH models namely Henderson, modified Henderson, modified Chung-Pfost, modified Oswin, modified Halsey, modified GAB and Chen-Clayton were fitted to the observed data and were evaluated using mean relative percent error, standard error of estimate and residual plots. At a constant relative humidity, equilibrium moisture content decreased with increasing temperature. The Chen-Clayton model described the EMC data the best, modified Henderson and modified Chung-Pfost equations gave good fit. The heat of vaporization (h_{fg}) of wheat flour at different flour moisture contents and temperatures was estimated from EMC-ERH data by using the Clausius-Clapeyron equation.

Keywords: *Equilibrium moisture content; Heat of vaporization and Wheat flour.*