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Effect of Particle Size on Moisture Sorptions Isotherms of RTE Cereals

Moisture sorption isotherms for Ready-to-Eat (RTE) cereals can be used in many applications, from storage conditions and packaging to process development. Our objective was to determine what effect grinding would have on the isotherms of RTE cereals deduced by a controlled atmospheric microbalance (Aquasorb). The Aquasorb and static desiccators were used to evaluate water sorption capacity of different samples of ground and whole RTE cereals. The results show that grinding has no overall effect on the isotherms gathered by the static desiccators method. In addition, the results show a tendency of isotherms gathered using the Aquasorb to be increasingly accurate, per the static desiccators findings, with decreasing particle size (increased grinding). The results follow from the increased surface area of the smaller particles, which allows the cereal to reach equilibrium with the atmosphere quicker, thereby lowering the amount of error introduced by the isotherm measurement method of the Aquasorb. Using this information, isotherms of RTE cereals can be determined faster and cheaper than ever before.



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