# 仓内谷物通风干燥过程的孔道网络模型Pore Network Model for Drying of Corn Material in Bin

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关键词： 谷物 干燥 孔道网络模型 双尺度

摘 要： 以仓内玉米堆为研究对象，运用孔道网络方法和传递过程原理等知识，建立了考虑颗粒自身热质传递、孔隙气相对流、温度梯度和孔道结构特征等因素的仓内谷物通风干燥孔道网络模型。该模型具有易拓展，干燥变量信息全面，可直接输入物料结构特征参数来模拟预测干燥特性等优点。Taking the corn material in bin as the study object, a pore network model for the corn drying was developed by applying the theories of drainage and percolation through porous media and transport-process. Various factors for the drying process, such as the heat and mass transfer in grain itself, vapor-phase convection, temperature gradient, as well as physical structure characteristic were considered into this model. Five independent variables were involved in this model, which was able to describe the drying process of corn material more effectively than the traditional drying model. Moreover, the physical structure characteristic parameters of corn material, such as porosity, pore size distribution and so on, as the model parameters, were input the model directly to predict the drying characteristic of corn material.

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