气流冲击式转筒干燥机设计与试验　Design and Experiment of Air-impingement Rotary Dryer

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关键词：　气体射流冲击 转筒干燥机 牧草种子 胡萝卜丁 结构 设计

摘　要：　设计了一种气流冲击式转筒干燥机，与常规式转筒干燥机相比，具有传热系数高、物料受热均匀、节约能源、单位体积装载量多等特点。干燥机采用保温隔热、热空气循环利用以及换气除湿等方法，工作时可根据不同物料的特性和产品要求调整热风温度、相对湿度、风速、转筒转速等工艺参数以及分支喷管直径、高度、倾角等结构参数。以牧草种子（披碱草种子）和胡萝卜丁为试验物料对气流冲击式转筒干燥机进行了性能试验，干燥后的披碱草种子可达到国家Ⅰ级种子标准，脱水胡萝卜丁复水后与原物料　L、a、b　色差ΔE仅为5.95。An air-impingement rotary dryer was designed, with a high coefficient of heat transfer, uniform heating of materials, energy conservation, high-volume loading compared to conventional rotary dryer. Some special structural design was used in thermal insulation, recycling of hot air, and dehumidification. The technical and structural parameters of this dryer such as hot air temperature, relative humidity, wind speed, rotary speed, branch nozzle diameter, height and angle, can be adjusted according to different materials properties and products requirement. Herbage seeds　(Elymus dahuricus)　and carrot cubes were adopted to test the performance of air-impingement rotary dryer. The results of drying can reach national first-class seed quality standard for　Elymus dahuricus　, and the value of　L, a, b　color difference, ΔE, between rehydration and raw materials of carrots was only 5.95.

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