

The Development, Construction and Evaluation of a Micro-spray Dryer.

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Abstract:

A co-current laboratory spray dryer was designed to meet multipurpose requirements for drying food materials and constructed from relatively cheap locally available materials. Tests, on the basis of 100% moisture were carried out to characterise the equipment and milk was dried to determine the particle size distribution.

The dryer efficiency at optimum conditions, varied between 44.7%-59.7% and the average particle size was 10 μ m - 20 μ m. The highest temperature of the air possible for drying was 413K while the lowest was 355K and the maximum air flow rate in the chamber was 31 litres/minute. The drying rate was 0.65g/min and, the maximum relative humidity of the outgoing air at the minimum temperature was 96%.

Keywords: Spray dryer/ food/ raw materials/ milk/ temperature/ humidity

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