

Laju penguapan tetesan aquades dan larutan gula 1% dengan variasi temperatur kecepatan aliran udara dan kelembaban udara = Quick droplet evaporation of aquades and 1% sugar solution with the variation of temperature, current velocity of air and humidity

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Abstrak

Dalam proses pengeringan seperti dalam proses pengolahan industri makanan, spray drying, evaporative cooling dan pembakaran bahan bakar cair, laju penguapan tetesan mempunyai peranan penting. Sehingga diperlukan pengetahuan tentang sifat laju penguapan air yang terkandung di dalamnya akibat pengaruh temperatur, laju aliran, konsentrasi dan kelembaban terhadap laju penguapan. Dari sini akan diperlihatkan korelasi dari bilangan Reynolds (Re), Prandtl (Pr), Schmidt (Sc), Nusselt (Nu), dan Sherwood (Sh). Penelitian ini bertujuan mengetahui adanya perpindahan kalor dan massa serta korelasi antara data pengujian dengan menggunakan metode rumus model umum, metode stagnan film, dan pendekatan model baru dari metode stagnan film oleh E. A. Kosasih.

.....In the drying process such as in food processing industry, spray drying, evaporative cooling and combustion of liquid fuel, the quick drop of evaporation plays an important role. Therefore it takes a knowledge about the nature of the water quick evaporation along with all the contents due to the effect of temperature, quick current, concentration and humidity of quick evaporation. Here it shows a correlation from reynold's number (Re), Prandtl's number (Pr), Schmidt's number (Sc), Nusselt's number (Nu) and Sherwood's number (Sh), This research is to find out the existing of heat and mass transfer and correlation between data experiment using the general formula method, stagnant film method and a new phenomenological stagnant film by Kosasih E.A (2006)