Dropsize function during dropwise condensation in relation to heat transfer intensification – Statistical approach

M.K. El-Adawi$^{a,b,*}$, T.H. Felemban$^a$

$^a$Physics Department, Faculty of Science for Girls, King Faisal University – Dammam
P.O.box 838, Pincode 31113, Saudi Arabic

$^b$On leave: Ain Shams University, Faculty of Education, Vice Dean, Heliopolis, Cairo, Egypt
Tel. +966 3846 3825; Fax +966 3843 4707; Email: adawish1@hotmail.com

Received 6 October 2009; accepted 7 June 2010

**ABSTRACT**

In the present trial a suggested statistical model is proposed to find the count and size distribution of droplets in dropwise condensation. This in turn, together with heat transfer through a single droplet is important for a thorough understanding of such mode of condensation. Growth due to natural (direct) condensation on the liquid/vapor interface and that by random coalescences are both considered. Fitting with early published experimental data is made for comparison.

**Keywords:** Dropwise condensation; Dropsize distribution function; Heat transfer

---

*Corresponding author*