



## **‘SMART’ Freeze-Drying**

### ABSTRACT:

By removing the ‘trial-and-error’ element from developing lyophilization process, SMART Freeze-Dryer™ technology enables user to optimize the primary drying segment of their lyophilization cycles. This article discusses this technology and the acceleration of lyophilization cycle development.

The SMART Freeze-Dryer™ utilizes Manometric Temperature Measurement (MTM) to optimize primary drying in a minimal number of cycles and provides additional characterization of the product by calculating product resistance, ice thickness and heat transfer flow.

Two case studies showing significant research and development savings, in both time and money, are cited.