

ESTIMATION OF WEIBULL MODULUS THROUGH ULTRASONIC MEASUREMENTS

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This research explores non-destructive ultrasonic measurements to estimate the Weibull modulus of glass, a key parameter for assessing its strength and reliability. Glass's unique properties make it widely used in various industries, but its brittleness and potential for catastrophic failure in critical applications necessitate accurate characterization methods. Traditional mechanical testing methods for Weibull modulus are costly and time-consuming. The study demonstrates that ultrasonic measurements offer a reliable and accurate alternative. Results obtained from ultrasonic measurements strongly correlate with conventional methods. The implications extend to industries like automotive and aerospace, where glass components play vital roles. Ultrasonic measurements can optimize design processes, ensure product reliability, and enhance safety. This cost-effective and efficient technique holds promise for quality control during glass component manufacturing, contributing valuable insights to advance the understanding and utilization of glass in diverse applications.

Keywords: Weibull modulus, Ultrasonic measurements, Glass, Non-destructive, Reliability