

TA002

MATERIALS PROCESSING - POLYMERS

MICROWAVE/RF METHODS FOR DETECTION AND DRYING OF RESIDUAL WATER IN POLYMERS

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Detection and drying of water in a polymer matrix is important because of customer quality and post-processing issues. A small percentage of water is present in some polymers due to two main reasons: process residual water or absorbed water from the environment. Water is often found in bound state in the polymer matrix, which makes it difficult to detect or dry with conventional methods. Microwave and RF methods can be used for detection of moisture due to a rise in the dielectric properties of the polymer. In addition, microwave and RF drying methods can be applied for fast drying due to volumetric heating. In this presentation the fundamentals of RF/Microwave interactions with moist polymers, and important parameters, such as temperature effects, thermal runaway, and frequency effects are discussed.