



Course Catalog Number: Ttm-6
Course Track: Thermodynamic Measurements
Course Topic: Humidity
Course Career Level: Intermediate

Sunday, August 25 | 1:00 PM - 5:00 PM | 1/2-Day PM (4 Hours)

Course Title: Relative Humidity Generation for Calibration

Instructor: Mike Boetzkes, Kinetic Technologies, Inc.

Abstract: Building upon the Fundamentals of Humidity Measurement, this tutorial expands into the methods of generating stable relative humidity environments for calibration purposes. Some of the more common humidity generation methods will be covered in detail including saturated salts, divided flow generators and two pressure systems.

The operating principles for each generator type will be discussed. Uncertainty budgets will be created for each generation system allowing for better comparison of the capabilities of each. In all relative humidity calibration systems, there are environmental impacts of parameters such as temperature on the calibration system can be the largest contributors to the uncertainty budget. The effects of these parameters on the overall uncertainty will be discussed as well as some practices that can be used to minimize these effects. External references such as chilled mirrors are commonly used to reduce the overall uncertainty of the system or to simplify the traceability of the measurements. Examples of these configurations will be presented, and the uncertainty budgets previously created will be updated to reflect the impact of the change of reference.

Learning Objectives:

1. Identify and understand the operating principles of the most common commercially available relative humidity generators.
2. Be able to create uncertainty budgets to cover the contribution of the RH generator.
3. Identify methods for reducing the uncertainty from the relative humidity generation process through the use of external references and optimizing the instrument setup.

Instructor Curriculum Vitae (CV):

Michael is a Metrology and Quality Consultant specializing in relative humidity and temperature measurement. He has been involved with manufacturing and calibration of Temperature and Relative Humidity measurement equipment for 20 years. Michael has led several calibration laboratories through the process of becoming accredited to ISO 17025, ANSI/NCSL Z540.1 and ANSI/NCSL Z540.3. He brings practical and theoretical experience to the audience around calibration process, and uncertainty budget evaluation.