

## REQUIREMENT

ISO/IEC Guide 25 1990(E), Section 10, paragraph 10.4 and ISO/IEC 17025(E) Section 5.4, paragraph 5.4.2. Where it is necessary to employ methods that have not been established as standard, **these shall be subject to agreement with the client**, be fully documented and validated, and be available to the client and other recipients of the relevant reports.

ISO/IEC 17025 1999(E) Section 5.10.3, paragraph 5.10.3.a deviations from, additions to, or exclusions from the test method, and information on specific test conditions such as environmental conditions:

## DEPARTURE FROM PROCEDURE

This method departs from portions of "ASTM E145 Standard". That requirements within this specification may be answered differently than those methods published. However, we are confident that the data collected still provides the necessary information to classify, calibrate and qualify the oven unit(s) to be compliant with requirements set forth within this standard.

## RESPONSE

### ASTM E145 Requirements for Class 11A Units

#### Section 4.0 Specifically 4.1 temperature uniformity, use of thermocouples.

When written, measurement uncertainty certainly wasn't on the minds of those who wrote this specification. They contradicted themselves when requiring the stated percentage of accuracy and then listing the types of thermocouples to be used. Riverview utilizes the described thermocouple types and verifies them in house on a three month interval in conjunction with the other test components involved.

#### Section 4.0 Specifically 4.2 monitoring or measuring for 24 hours.

Since customers are required to monitor testing utilizing a chart recorder, and the expense of technical staff on-site for 24 hours would not be economical, Riverview checks the unit under test at 3 different temperatures allowing specified stabilization time between temperature changes.

#### Section 5.0 Specifically 5.1 Time constant

Riverview performs a "**Recovery Rate**" check on units under test. Utilizing the required "brass slug" and thermocouple set-up and opening the oven door to allow temperature to drop for 1 minute. This simulates the opening of oven doors after samples have been placed into the unit (possibly to put additional testing in), Riverview determines how long it takes the unit to recover to the desired operating temperature. Recovery is when the air thermocouple and the copper slug thermocouple both regain to the same set point temperature.

#### Section 6.0 Specifically Rate of Ventilation by use of a watt meter for voltage changes.

Several difficulties arise when trying to perform this particular test:

Companies have units hard wired, or positioned so that even getting to the plug or power source is impossible. Lock outs and other restricting devices are also used to prevent access due to insurance or OSHA regulations. Unions can be another source of aggravation when attempting to get at power supplies.

#### OPERATIONAL NOTE:

It was also determined that an oven unit can be hooked up backwards electrically have correct voltage draw or consumption, but produce no air flow through the chamber. It will still provide correct voltage changes, however, the unit will then suck air from the chamber rather than blow into it. Wired backwards entailed the three phase poles to be wired incorrectly.

Riverview substitutes the electrical change portion of ASTM E145 which calls for a check on voltage consumption with ASTM D3012 requirements which calls for "**Air Flow**" within the chamber to be a minimum of 279 feet per minute. RCS checks this by utilizing an anemometer. It has been determined that the most NEW ovens operate around the 312 to 328 ft/min range (larger or specialty ovens can have higher flow rates). If the unit operates between 279 and 328 there is sufficient air flow and the heaters are able to stabilize quickly, accurately and efficiently. Units under the 279 minimum tend to overheat or run hot. Units which operate over the 328 range tend to have trouble stabilizing to the desired temperatures, especially "High Temperatures", and the heaters are always playing catch-up. This is detrimental to the controller, relays and heaters themselves.

**NOTE:** checking air flow with an anemometer also allows the lab manager, or technician without formal electrical training to verify periodically the operation of the unit internally and acquire data for comparison.

#### CLASSIFICATION NOTE:

**A2LA prohibits calibration laboratories from classifying any unit that does not meet requirements stated within ASTM E145. When a unit fails to meet specifications, it is left up to the user to determine whether it should be used for testing or not.**