

Update – Heat Release Rate Apparatus

Hi Everyone!

I want to first thank all who participated in this meeting both here at the Tech Center and on the telecon afterwards. If you were not able to participate please know that things went well and we accomplished alot. The general overview of the day is that the current proposal is to change the calibration sequence, standardize the position of the calibration T-burner and remove the bypass air section on top. At this time the lower air distribution plate will remain the same.

Calibration burner: The centerline of T-burner will now be positioned at the same location as the centerline of the lower pilot burner outlet (5 mm up and 10 mm away from lower sample edge)

Calibration sequence: Things have changed from what I proposed earlier. Here is the new wording in the workbook:

Calibration is conducted with the sample injection mechanism withdrawn into the holding chamber and all doors closed. During the calibration process the gas flow to the burner is increased to a higher flow rate (2, 3 or 4 SLPM) and then decreased to a baseline flow rate (1 SLPM). The average thermopile millivolt and MFM/MFC gas flow value is calculated over the final 10 second period of a 3 minute burn at each rate. The sequence of increasing and decreasing the Methane flow rate is as follows: 1 → 2 → 1 → 3 → 1 → 4 SLPM.

To begin calibration, Methane gas is set to the baseline flow rate of 1 SLPM, the burner is lit and all doors are closed. After 1 minute the chamber is pre-conditioned by burning 4 SLPM for 2 minutes. It is not necessary to record the thermopile or gas flow output for this step as part of the calibration. Immediately following this preheat period, the calibration sequence begins.

Note: The last 2 repeat steps are now removed and there is a longer dwell time at each step. The calibration beginning preheat period has been better standardized as well. Finally the high flow rates of 4, 6 and 8 SLPM have been replaced with 2,3 and 4 SLPM.

Bypass air removal: Basically there will now be a 0.018 +/- 0.02", 14" tall pyramid (insulated) with a standardized opening on the top of 2" x 4" (no baffle plate in the chimney section). The thermopile hot zone positions will remain unchanged within the exhaust stack.

I'm in the process of updating the Chapter HR (we are calling this revision B). Once I finish this I will send out the revision to everyone for review. In the mean time if you have questions or comments please let me know and as always thank you!