

BM Cold-Stream Alignment

To all,

October 11, 2007

Frank, Norma and I have just completed a map of the 19BM cold-stream and we discovered a significant alignment error in the vertical direction. We have corrected this error and dropped the temperature several degrees at the sample location. The error was not bad enough to put the temperature in an unusable range, but it was much closer to the edge than we should tolerate.

From now on, we suggest the following procedure for aligning the BM cold-stream.

Procedure for aligning the BM cold-stream

1. Put the standard cold-stream alignment pin on the end of the cold-stream (as you normally would)
2. Align the cold-stream so the pin points exactly at the crosshair position (again, just as you normally would)
3. Once the pin is aligned, look at the dial marker on the vertical slide. The vertical slide has a scale near the handle that has 100 divisions. Read the number of the division closest to the scale marker.
4. To complete the alignment, rotate the handle so the vertical slide moves up. This should be in the clockwise direction as viewed from the floor looking to the ceiling. Move the handle 110 small divisions. This is equivalent to 1.1 turns on the handle. If the starting number is 15, for example, the final number would be one full turn plus 10 small divisions. This would give the ending number as 25 on the scale.

This will put the cold-stream in the proper vertical position. The cold-stream flow is uniform enough so that it does not require moving the cold-stream slide closer to the crystal. The horizontal center is also accurately placed using the alignment pin so it does not need to be moved either. At the 100K controller setting we estimate the sample temperature to be 103.5K.

If you have any questions, please call or come by and I will demonstrate it.

Randy