UCD CSN Technical Information #402G

Punch Certification

Chemical Speciation Network
Air Quality Research Center
University of California, Davis

July 31, 2020
Version 1.1

Prepared By: DocuSigned by: 576E7FBD67AC489... Date: 8/13/2020

Reviewed By: DocuSigned by: Xiaolu Zhang 8CDD742437574E9... Date: 8/13/2020

Approved By: DocuSigned by: Nicole Hyslop BCDBAE63A95C46A... Date: 8/13/2020

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DOCUMENT HISTORY

Date Modified	Initials	Section/s Modified	Brief Description of Modifications

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1. PURPOSE AND APPLICABILITY

The subject of this technical information document (TI) is to describe the procedures for certifying the punch by mass.

2. SUMMARY OF THE METHOD

Punch area is determined by weighing the 47 mm quartz filter before and after cutting a number of punches and calculating the mass difference. The punch area must be certified by mass prior to use and as needed.

3. DEFINITIONS

Not applicable.

4. HEALTH AND SAFETY WARNINGS

Not applicable.

5. CAUTIONS

Not applicable.

6. INTERFERENCES

Not applicable.

7. PERSONNEL QUALIFICATIONS, DUTIES, AND TRAINING

Only trained lab personnel designated by the Laboratory Manager may perform the procedure.

8. EQUIPMENT AND SUPPLIES

1. 47 mm quartz filters (not pre-fired)
2. Analytical Balance
3. Weights
4. Forceps
5. Punch
6. Punching surface
7. Aluminum foil
8. Digital Caliper
9. Excel file QuartzPunchers (..\..\..\Punch_calibrations\QuartzPunchers.xlsx)

9. PROCEDURAL STEPS

1. Check the analytical balance with the 500, 50 and 10 mg weights. Record the values in grams (g).
2. Place aluminum foil over the punching surface.
3. Use clean forceps to randomly select a 47 mm quartz filter. Place the filter on the punching surface.
4. Turn on the digital calliper and move to zero. Zero the caliper.
5. Use the digital calliper and measure the filter diameter in mm. Record the value.
6. Zero the analytical balance and place the pre-measured quartz filter on the balance.
7. Record the weight of the 47 mm filter.
8. Remove the filter from the balance and place on the punching surface. Then take 5 punches (leave enough space for 5 additional punches to be taken).
9. Place the filter back on the balance and record the value (in 47 mm filter – 5 punches).
10. Remove the filter from the balance and place on the punching surface then take 5 punches (a total of 10 punches have been taken).
11. Place the filter back on the balance and record the value (in 47 mm filter – 10 punches).
12. Follow step 3-11 for two additional quartz filters.
13. Open the QuartzPunchers Excel file. Copy the “Template sheet.” The name of the puncher is the next letter in the Greek alphabet.
14. Enter the information required in the template and the average punch area in cm2 will be calculated. Please note the certified puncher area is the same as the average punch area.
15. Print a label with the information Punch name and cerified puncher area and place on the puncher (e.g. the label for Punch Epsilon is “Epsilon, Area= 0.584 cm2”).

10. QUALITY ASSURANCE AND QUALTY CONTROL

Not Applicable.

11. REFERENCES

Not Applicable.