SCAA and ECBC

Uniformity of Extraction Evaluation Procedure
2014 Updated Version

Procedure:

This procedure must be replicated at least three times per brewer model to evaluate uniformity of extraction. The below steps describe the method for an individual brewer run (1 coffee filter with 1 spent bed of coffee grounds), therefore must be repeated 3 times on three separate brew runs.

1. Brew a batch of coffee to the desired balance of strength and extraction. For the Gold Cup zone of the SCAA/North American brewing control chart, this would be 1.15-1.35% strength and 18-22% extraction. For the ECBC/European brewing control chart this would be a brew with 1.30 – 1.55% strength and 18 - 22% extraction.
2. Remove the spent coffee bed in its paper filter and place it into a drying oven. Make sure the filter lies as flat as possible, unless it is a cone-shaped filter. In which case, allow the cone-shaped filter to sit upright, supported by an oven safe support or cup. It is best to elevate the filter using a rack or screen to maximize airflow and uniform drying.
3. Turn on oven to 175°F (~80°C), with the temperature not exceeding 180°F (~82°C).
4. Dry sample for at least 4 hours, or until the grounds and filter are thoroughly dry.
5. Prepare three sample cups and label them A, B, and C

Refer to figure 1 for the following steps:

6. Remove 2 grams of dried grounds from each of the four A sections (A1-A4) and put them in the sample cup, for a total weight of 8 grams. Remove samples from the bed so that they represent the full bed depth of coffee.
7. Add 92 grams of distilled water (15°C) to the sample cup with the grounds. Seal the lid of the sample cup and shake for 10 seconds.
8. Repeat this process for Sections B and sections C. For section C, simply remove 8 grams of coffee and place in the sample cup.
9. Set the three sample cups aside for at least 12 hours at room temperature 65-75°F (~18-24°C)
10. Open sample cup A and remove a sample of the liquid using a syringe or eye-dropper. Filter the liquid to make sure no coffee particulates are included and test the sample for TDS using a coffee refractometer. Test at least three times and average result. Record as Sample A residual TDS.
11. Rinse the sample well in the coffee refractometer with distilled water.
12. Repeat step #10 with B and C samples.

Evaluating the results:

13. Of the B and C residual TDS values, divide the smaller value by the larger value. Then, multiply that number by 100. This is the B/C uniformity factor.
14. Of the B and A residual TDS values, divide the smaller value by the larger value. Then, multiply that number by 100. This is the B/A uniformity factor.
15. Of the A and C residual TDS values, divide the smaller value by the larger value. Then, multiply that number by 100 to convert to percent. This is the A/C uniformity factor.
16. Average the three (B/C, B/A, and A/C) uniformity factors. This is the brewer's average uniformity factor for this brew cycle.
17. Repeat steps 1-16 three times on three brew cycles.
18. Evaluate the three average uniformity factors.
    a. The factors should range from 0 - 100, with 100 indicating perfect uniformity of extraction.
    b. All values below 60 would be listed as "needs improvement" and would constitute the brewer failing the uniformity of extraction test. This would prevent the brewer from being certified by the SCAA.
    c. An average uniformity of 60 would be considered "good". All three of the uniformity of extraction tests on a brewer model must result in an average uniformity of extraction value of 60 or above for the brewer to pass this test and have the potential for SCAA Certification.
    d. An average uniformity above 75 would be considered "excellent".
    e. An average uniformity above 90 would be "outstanding".

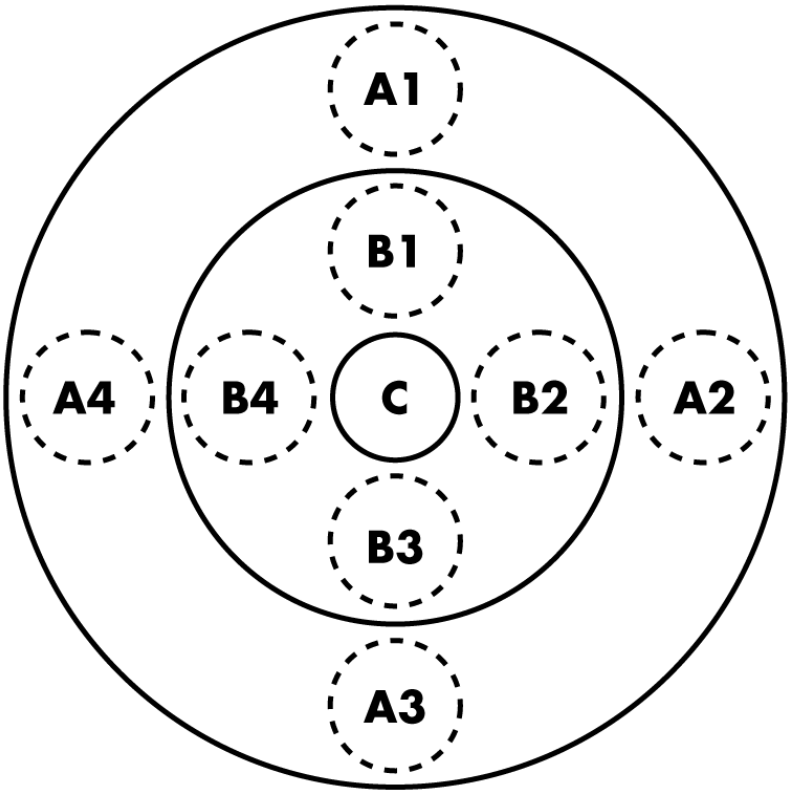

Figure 1. Filter coffee sampling diagram