QCP2

BALANCE QUALITY CONTROL

1.0 PURPOSE AND SCOPE

To describe the procedures for the operational checks and calibration of laboratory analytical and top loading balances that will be used for making critical measurements. Critical measurements include all measurements which factor directly into sample data calculations.

2.0 RESPONSIBILITIES

The Laboratory Manager is responsible for assuring that this procedure is implemented.

All laboratory personnel are responsible for implementing this procedure.

3.0 CALIBRATION OF BALANCES AND WEIGHTS

3.1 All balances used to generate critical data will be calibrated by a outside professional calibration service which can demonstrate traceability to NIST. The calibration frequency for analytical and top loading balances shall be at least annually, within 30 days of the expiration date of the last calibration.

3.2 All balances used to generate critical data will be calibrated inhouse on a monthly basis with calibrated weights which can demonstrate traceability to NIST.

3.3 The Class S and Class F weight sets shall be calibrated at a frequency recommended by the vendor. The minimum acceptable frequency is every 2 years.

4.0 OPERATIONAL PROCEDURES

4.1 Equipment

4.1.1 Analytical balances
Top loading balances (used for making critical measurements)

4.1.2 NIST traceable weights
Class S weight set
Class F weight set

4.2 Procedure for daily operational check

All balances used in the laboratory will be checked each day before weighing samples, using a single weight. Analytical balances have an allowable deviation of ± 0.5 mg from the certified weight. Top loading balances have an allowable deviation of ± 0.1% from the certified weight. See step 4.5 if measurements fall outside the allowable range.

4.2.1 Analytical Balance

Place a NIST traceable Class S 10 g weight on the balance. Record the date, weight, and analysts initials in the daily balance log.

Note: For balances interfaced to a computer, depress the foot switch to transfer the balance weight information electronically to an electronic log.

4.2.2 Top Loading Balance

Place a NIST traceable Class F 100 g weight on the balance. Record the date, weight, and analysts initials in the daily balance log.

4.3 Each balance will be calibrated, internally or externally, monthly according to the procedure described in the operating instruction manual. The date of the internal calibration and the analyst's initials will be noted in the balance log.

4.4 Procedure for monthly operational check of analytical and top loading balances.

All balances will be externally checked once a month with a set of NIST traceable Class S and/or Class F weights. The results are recorded in the balance log.

4.4.1 Analytical balance

Measurements are made using the NIST traceable Class S 10 mg, 100 mg, 1 g, 10 g, and 100 g weights.

Note: The allowable deviation is ± 0.5 mg from the certified weight. See step 4.5 if measurements fall outside the allowable range.

4.4.2 Top loading balance

Measurements are made using the NIST traceable Class F 100 g, 500 g, 1000 g, and 2000 g weights.

Note: The allowable deviation is 0.1% of the certified weight. See step 4.5 if measurements fall outside the allowable range.

4.5 The procedure for corrective action when an operational check value or calibration falls outside acceptable range is as follows:

4.5.1 If daily or monthly operational checks fall outside the specified range, clean, level, and tare the balance to zero and perform the check measurement again. Note any additional check or calibrations in the logbook.

4.5.2 If the operational check continues to fall outside the specified range, remove the balance from service and initiate a non-conformance report (NCR). Note that the balance has been removed from service in the balance check log for that balance.

4.5.3 If the balance is removed from service due a the failure of calibration during step 3.1, the date of removal and the analyst's initials are recorded in the balance log for that balance.