STANDARD OPERATING PROCEDURE
STAN MAYFIELD BIOREFINERY PILOT PLANT

TITLE: Dry Weight Measurement by Loss After Drying

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A. Scope

This procedure describes how to determine the dry weight content of a sample by drying in an oven.

B. Safety and Training Requirements

Refer to UF lab safety policies and review the Material Safety Data Sheets (MSDS) for each material listed in section D below before starting any process work.

Review the location of fire extinguishers, fire blankets, safety showers, spill cleanup equipment and protective gear before beginning any process work.

During operations in the laboratory, the following safety gear will be utilized at all times:

- Safety Goggles or Face Shield
- Protective Gloves (nitrile, neoprene, heat resistant)
- Lab coat

C. Related Documents and SOPs

1. Denver Instrument Summit Series Balance manual (98648-013-93)
2. Drying oven manual _____ (To be added when received)
3. Sample SOP-0511

D. Preparation/Materials/Equipment

1. 6 inch aluminum pan (9” x 9”)
2. Balance (Denver Instrument, S-4002)
3. Drying oven (Thermo Scientific Precision) set to 105°C
4. Desiccator
5. Desiccant

E. Detailed Procedure

1. Measure and record the tare weight of an empty aluminum pan to 0.01 g.
    a. There should be at least two pans per sample so that the dry weight measurement is done in no less than duplicates.
2. If the sample is frozen, thaw out at room temperature.
3. Place enough of the sample into the aluminum pan to cover the bottom of the pan.
4. Measure and record the weight of the aluminum pan with the sample to 0.01 g.
5. Place the aluminum pan with its contents into a preheated 221 °F (105 °C) oven for 48 h.
6. Using heat resistant gloves, take the pan with its dried contents out and place in a desiccator for at least 1 h to cool down.
7. Measure and record the weight of the aluminum pan and its dried contents.
8. Subtract the tare weight of the pan from the weight obtained in Step E.7.
9. Subtract the tare weight of the pan from the weight obtained in Step E.4.
10. Divide the value obtained in step E.8 by the value obtained in step E.9 and multiply by 100 to obtain the % dry weight of the sample.

F. Data Archival and Analysis

Record all measurements and calculations in the laboratory notebook including the date, time, vessel, and batch number of the sample.