

**STANDARD OPERATING PROCEDURE
STAN MAYFIELD PILOT PLANT****TITLE: BIOMASS STORAGE AND HANDLING****AUTHOR: G.W. Luli****DATE: 11/15/2011****APPROVALS: Process Change Committee****DATE: 02/22/2012**

A. Scope

Sufficient biomass feedstock will be stored on site for one to two weeks of operation. A covered 20 ft x 20 ft area is designed for storage. Transfer of biomass from the storage area to the process feed system will be done by front end loader. This SOP covers the proper methods for storage and loading the feed hopper.

B. Safety and Training Requirements

Biomass piles are subject to fires through excessive heat from internal fermentation and sparks. Fire suppression equipment (Fire hose and extinguisher) is available and is located inside overhead door by bin.

Biomass tends to self-heat due to microbial action during long term storage. If areas of steam or smoke are observed, disperse the biomass to permit air cooling.

Operation of the Front End loader requires training per UF training policy.

C. Related Documents and SOPs

Front End Loader Operator's Manual Model LA524
Feed Bin (BN-2101) SOP-1200

D. Preparation/Materials/Equipment

Front end loader with bucket with sufficient height to clear Feed Bin
Biomass
1 gallon plastic bag
Marking pen

E. Detailed Procedure**a. Biomass Storage**

Biomass will be stored in the covered 20 ft x 20 ft Biomass Bin and removed in the first-in-last-out manner. The bin drains to the east wall and then south out of the bin.

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The total storage area is approximately 4000 cubic feet (20x20x10) to accommodate one 45 ft long truck trailer of 2880 cubic feet (8x8x45). One trailer load of sugarcane bagasse is approximately 18 wet tons (12 lb/cu ft bulk density).

b. Biomass Transfer to Feed Bin

CAUTION: Verify a clear path between storage pile and feed bin. Alert any workers in area.

CAUTION: Do not scrape the concrete floor of the Biomass Bin when filling the front loader bucket.

If the bucket does contact the floor, empty the bucket contents into waste area.

CAUTION: Do not introduce foreign objects (stones, metal scraps, wood) into the pile or front loader during operation.

1. The Feed Bin BN-1201 has sufficient volume for 3 hours of operation. Biomass is transferred from the Biomass Bin to the Feed Bin using a front end loader.
2. The Feed Bin BN-1201 has a low limit alarm to indicate low levels of biomass.

All asphalt areas adjacent to the storage shed should be swept daily or more if needed to ensure that no small rocks or other debris contaminates biomass. Even small rocks have the potential to cause major damage to process equipment.

3. Data Archival and Analysis

- a. Upon receipt of each biomass delivery, add a sample to a 1 gallon plastic zip-lock bag at least ½ full for moisture, bulk density, and compositional analysis in the lab.
- b. Label Sample on the bag with the following:
 - i. Date:
 - ii. Biomass type:
 - iii. Batch Number:
- c. Samples to be stored frozen (- 4 F) until analyzed.
- d. Determine moisture content daily.
- e. Determine composition monthly

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- f. Keep retain of sample frozen (- 4 F)