STANDARD OPERATING PROCEDURE
STAN MAYFIELD BIOREFINERY PILOT PLANT

TITLE: Antifoam Storage

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DATE: October 25th, 2011

APPROVALS: Process Change Committee

DATE: December 16th, 2014

A. Scope

This SOP describes the procedure to prepare and store the antifoam solution.

B. Safety and Training Requirements

Refer to UF lab safety policies regarding equipment 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 plant, the following safety gear will be utilized at all times:

- Hard Hat
- Safety Glasses
- Protective Gloves

C. Related Documents and SOPs

1. MSDS Binder
2. Media Preparation SOP-2155
3. Air System Operation SOP-9405
4. UV Water System Operation SOP-9555
5. Potable Water SOP-9705

D. Preparation/Materials/Equipment

1. Antifoam (ChemTreat Inc., FO891 Defoamer)
2. Bung wrench
3. Rotary drum pump
4. Sterile 5-L bottle

E. Detailed Procedure

1. Before starting, ensure the UV Water System is operating according to the UV Water System Operation SOP-9555.
2. Ensure the Potable Water system is operating according to the Potable Water SOP-9705.
3. Ensure that instrument air is ready according to Air System Operation SOP-9405.

4. Ensure the antifoam weigh scale WS-8303 is measuring weight within an acceptable range (± 5% of target weight).
5. Close the valve 8302-V-02.
6. Open the top of the drum using a bung wrench.
7. Insert the rotary drum pump into the opening and pump the antifoam into a sterile 5-L bottle.
8. Using the laminar flow clean bench, prepare the desired concentration of antifoam solution to be used. At the plant floor, open the respective containers and add the desired amount of antifoam that was prepared.
9. Ensure valves 3213-V-04, V-05, V-06, V-07, V-13 and V-18 are open.
10. Ensure the valves 3213-V-09, V-10, V-11, V-12, V-15, V-16, V-17, V-19, V-20, and V-21 are closed until they need to be opened by their respective SOP's.
11. In order to supply antifoam solution from Antifoam Storage Tank 6 (TS-3218) to the Primary Propagators 2A or 2B, open the valve 3213-V-19 or V-20 respectively. On the HMI (XS-3210-01), turn on the Antifoam Pump 3 (PT-3210).
12. In order to supply antifoam solution from Antifoam Storage Tank 1 (TS-3213) to the Secondary Propagators 3A or 3B, ensure valve 3213-V-14 is open, and then open the valve 3213-V-15 or V-16 respectively. On the HMI (XS-3214-01), turn on the Antifoam Pump 1 (PT-3214).
13. In order to supply antifoam solution from Antifoam Storage Tank 3 (TS-3215) to the Fermentors A, B or C, ensure valve 3213-V-08 is open, and then open the valve 3213-V-11, V-10 or V-09 respectively. On the HMI (XS-3215-01), turn on the Antifoam Pump 2 (PT-3215).

F. Data Archival and Analysis

Take notes of all calculations and measurements. Store the data in the appropriate Log Book.

G. Tickets