This is an example operating procedure only – do not use

Hypothetical Biomass Operating Procedure

SOP No. 1-1

Anytown, Iowa

Process Description: This operating procedure details the manufacture of bioethanol in Reactor 101. Water, acid, and enzyme are charged to R101 and heated to 95 °F with hot water on the jacket. The pretreated biomass is next charged to R101 and the reactor reheated to 95 °F. ……

Required PPE: Step 1: A face shield and rain coat must be worn when using the pressure wash wand. Step 4: Full face shield, acid resistant gloves, and long sleeves must be worn when opening the sulfuric acid valve, V101.

1. Check to make sure R101 is clean. It does not need to be dry but there should be no visible solids in the vessel. If solids are present, rerun the spray wash with recycled water for 10 minutes. If the solids are not removed with the spray wash, use the pressure wash wand to remove the solids. WARNING: A face shield and rain coat must be worn when using the pressure wash wand.
2. Check to make sure that the preheated water temperature is 95°F - 105 °F. Open valve V-111 and charge 1,000 kg. of preheated water to R101. (Note: A variance of + 25 kg is allowed on the water charge. Record weight of R101 after the water charge.) Start R101 agitator after recording R101 weight.
3. Check to make sure that the water temperature in Hot Water Generator 102 is 130 °F - 140°F. Adjust if necessary. Place hot water on the jacket of R101.
4. Sulfuric Acid Charge: Warning: Acid resistant gloves, full face shield, and long sleeves must be worn when charging sulfuric acid. Open V-101 and charge xx kg. of 98% sulfuric acid to R101.

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