Gemini Industries, Inc.	Proper Mixer Selection and Mixing Dynamics
Standard Operating Procedure	PROD-22-0013 01

Author	Status	Effective Date
Michael Boblit	Final	9-21-22

1.0 Purpose

This SOP is intended to outline the proper steps and procedures for selecting the proper mixer and mixing dynamics.

2.0 Scope

This document covers the standard procedures to be followed for employees in the production department when selecting tubs and understanding mixing dynamics. By following the instructions, the workload will be completed accurately, consistently, and safely.

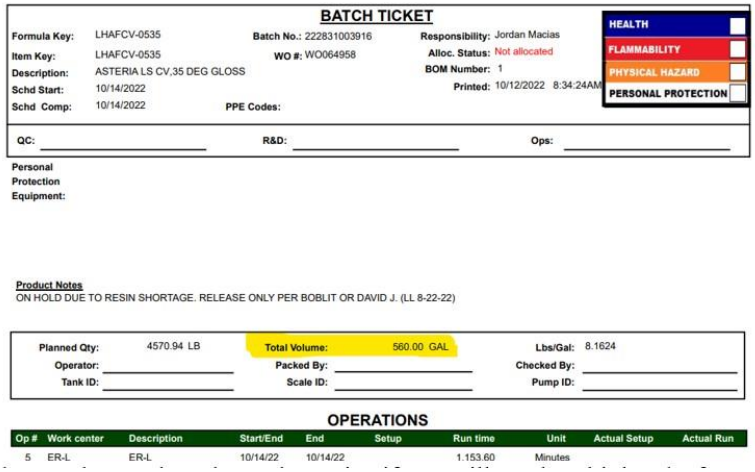
3.0 Safety

***Absolutely NO Electronic Devices in the Hazardous Environments. (Production, Fill-Off, TWP Room)**
***Absolutely NO use of headphones, ear buds, etc. inside the Warehouse and/or Hazardous Environments.**
If you do not fully understand what you are doing consult your immediate supervisor for further direction.

4.0 Proper Mixer Selection and Mixing Dynamics

4.1 Proper Tub Selection

4.1.1 Review the Work Order to determine the size of the batch you are going to make. The "Total Volume" is listed on the Work Order. See the "Total Volume" highlighted in yellow in the picture below.



BATCH TICKET

Formula Key: LHAFCV-0535 Batch No.: 222831003916 Responsibility: Jordan Macias
Item Key: LHAFCV-0535 WO #: WO064958 Alloc. Status: Not allocated
Description: ASTERIA LS CV,35 DEG GLOSS BOM Number: 1
Schd Start: 10/14/2022 Printed: 10/12/2022 8:34:24AM
Schd Comp: 10/14/2022 PPE Codes:

HEALTH
FLAMMABILITY
PHYSICAL HAZARD
PERSONAL PROTECTION

QC: R&D: Ops:

Personal Protection Equipment:

Product Notes
ON HOLD DUE TO RESIN SHORTAGE. RELEASE ONLY PER BOBLIT OR DAVID J. (LL 8-22-22)

Planned Qty: 4570.94 LB Total Volume: 560.00 GAL Lbs/Gal: 8.1624
Operator: Packed By: Checked By:
Tank ID: Scale ID: Pump ID:

OPERATIONS

Op #	Work center	Description	Start/End	End	Setup	Run time	Unit	Actual Setup	Actual Run
5	ER-L	ER-L	10/14/22	10/14/22		1,153.60	Minutes		

4.1.2 Look over the Work Order to determine if you will need multiple tubs for your process. In the example below a note is highlighted in yellow instructing you to make a portion of a batch in a separate tub, sometimes referred to as a grind tub or a premix tub.

ADJUST pH TO 8.5 - 9.0
PREMIX NEXT 2 ITEMS
SDE1561 WATER 3.63 30.2485 LB
MKW1740 VISCOATEX 730 0.58 5.1422 LB
ADD PREMIX SLOWLY TO VORTEX
MIX 25 MINUTES THEN QC

4.1.3 Inspect your tub to ensure that the tub and the valve neck are clean. **If these are not clean you could contaminate a batch that would have to be wasted.**

4.1.4 Inspect to verify that the grounding lead, valve, and valve cap are all in good working condition. Report defective or damaged equipment to your immediate supervisor or put in a maintenance request.

4.2 Proper Mixer Selection

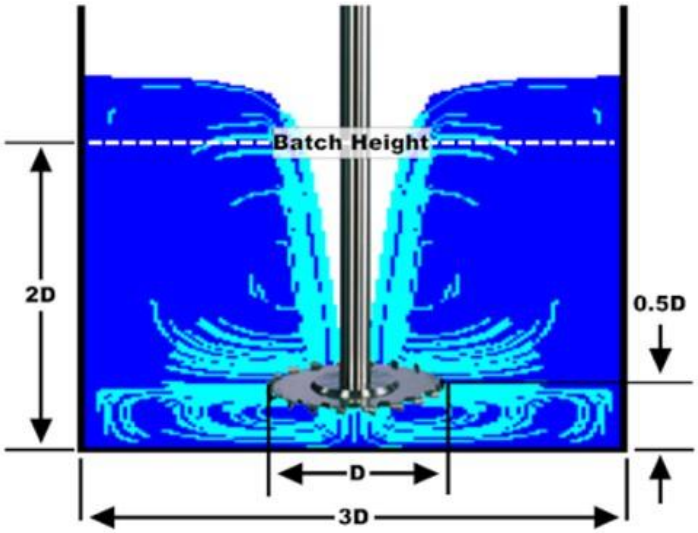
4.2.1 Select a mixer and tub combination where the diameter of the mixing blade is roughly 1/3 of the diameter of the mixing tub.

4.2.2 The mixing blade should be positioned roughly ½ the diameter of the blade off the bottom of the mixing tub.

4.2.3 The liquid level of the batch should be 1.5 times the blade diameter above the mixing blade.

4.2.4 The blade should be centered in the tank unless excessive sloshing occurs that

cannot be control by adjusting then blade speed. See the diagram for an illustration.



4.2.5 Allow room in the tank for product mixing. The product level could rise as much as 20% in the tank once the mixer is running at high speed. See the diagram below for an illustration of proper mixing vortex, sometimes refer to as a "doughnut".

4.2.6 This type of mixing is a best practice for all batches and required to properly grind and heat products.

5.0 References

Reference	Title
1	None