

QUALITY WORK INSTRUCTIONS (QWI)

MILLING AND PACKAGING

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Effective Date: 8/27/12

1.0 OPERATIONAL INSTRUCTIONS

1. Plant Manager/Production Manager insures that the schedule is communicated to the Mill Operator and provides the production material needed and assists the Mill Operator in start up and shut down. The procedures are:
 - START UP
 - a. Check rollers – Add oil as needed
 - b. Check whizzer fingers – Clean if necessary
 - c. Seal all access doors
 - d. Empty dust collector
 - e. Start up CO2 generator
 - f. Inspect Dewco separator
 - g. Turn on dust collector
 - h. Check CO2 at mill; if 10% +, proceed. Checks are performed every 30 min.
 - i. Turn on whizzer. Set to appropriate RPM.
 - j. Turn on Dewco separator
 - k. Turn on screw conveyor to Dewco separator
 - l. Turn on cyclone rotary valve
 - m. Turn on mill fan
 - n. Check CO2; if 7.5% +, proceed
 - o. Check mill manometer for proper pressure
 - p. Feed product to mill (manually, approx. 6 seconds)
 - q. Start mill drive and (switch mill feeder to auto)
 - r. Check product feeder for proper operation
 - SHUT DOWN
 - s. Turn off mill feeder
 - t. After mill empties, turn off mill drive
 - u. Empty system
 - v. Turn off mill fan
 - w. Turn off whizzer
 - x. Turn off air lock
 - y. Turn off screen conveyor to Dewco separator
 - z. Turn off Dewco separator
 - aa. Turn off CO2
 - bb. Turn off dust collector
 - cc. Open mill
 - dd. Grease bearings etc.
 - ee. Check oil levels in mill – add if needed
 - ff. Check oil level in whizzer – add if needed
2. Mill Operator ensures that routine lubrication and mechanical checks are done and set the grind parameters for the scheduled production.
3. Mill Operator grasps a sample, at approximately 1,000 pounds into each pallet, for screen testing.
4. Based on the analysis received from the Quality Control Technician, the Mill Operator adjusts the grinding parameters if necessary.
5. The finished product is packaged per customer requirement and stored in a designated area.
6. Product change required “washout” is recorded on mill operating report.
7. Wash out is required with every start up.

2.0 INCOMING INSPECTION

None required

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3.0 PROCESS CONTROL DOCUMENTATION

Particle size results (through screen mesh) are recorded in the In-process Screen Log Book by the Q.C. Tech.

4.0 IN-PROCESS INSPECTION / TESTING

The Quality Control Technician conducts the necessary analysis, records results in the Final Inspection Log Book, completes the Certificate of Analysis (Form 35), and ensures that the Release Sheet (Form 28) is completed.

The following are performed per product requirement.

	<u>Inspector</u>	<u>Frequency</u>	<u>Documentation</u>
SCREEN TESTING	Q.C.Tech	Minimum 1 per order	In-process Screen Log Book
LOT NUMBER ASSIGNMENT	Mill Operator	Each Skid	In-process Screen Log Book
ASH	Q.C.Tech	Production Run	Final Inspection Log Book
HEAT LOSS	Q.C.Tech	Production Run	Final Inspection Log Book
SCREEN ANALYSIS	Q.C.Tech	Production Run	Final Inspection Log Book
ACIDITY	Q.C.Tech	Production Run	Final Inspection Log Book
OIL	Q.C.Tech	Production Run	Final Inspection Log Book

5.0 ACCEPT / REJECT CRITERIA

The Q.C. Tech checks specifications in the Specification Manual. Product samples are retained for a minimum of 6 months.

6.0 CONTROL OF NONCONFORMING PRODUCT

Any nonconformance discovered during manufacture is marked with a Hold Tag (Form 10) and placed in the segregated area. The Plant Manager will schedule a retest on in-process sample to further evaluate the nonconformance and record by notation on the Hold Tag.

7.0 GAGES / TEST EQUIPMENT

Instruments used are the Scale, Oven, and Sieves. Calibration details are described in the applicable Calibration Procedure QWI's.

8.0 PRODUCT IDENTIFICATION AND TRACEABILITY

Crude sulfur is recorded on the In-process Screen Log Book by the Mill Operator/Q.C. Tech according to bin #. Lot numbers are assigned based on the date of manufacture and order of production. Lot numbers are assigned according to the format outlined in QM7 section 7.5.3. Mill Operator marks the lot number on several bags in each pallet of produced material and QC Tech records that number in the In-process Screen Log Book.