CALIBRATION & VERIFICATION OF WEIGHING BINS/WEIGHBRIDGES /WEIGHING TANKS

Objective: To ensure accuracy in weighment of different components of the burden/Finished Good/Raw material.

Scope: This procedure is applicable for all weigh bins, Weighing tanks & weighbridges.

Reference: Operating manual for Sartorius make weight indicator model PR5510 & PR PR5310 and operating manual for Jihangine YH8210-B11

Standard used: 1) Calibration weights (C. I. Weights 20Kg each).

Performance Criteria : Accuracy in weighment as per acceptance limit +-5Kg for Weighing Bins,+-30Kg for Weigh bridge & +-20 kg for Weighing tanks

Aspect for the Activity : Waste generation

Identification of Hazards:
Mechanical Hazard: Impact of falling of C.I weights, Impact due to trapping of fingers under C.I Weight, Dust, Compressed Air, Vehicle collision, Hit by vehicle, Trip & Fall, Falling in Weighing Bin.
Hazard due to Human Behaviour/Human error: Throwing of weight from height, Alcoholism, Improper stacking of weights, not adhering to WI/ PPE, Use of non-certified crane, Fatigue.

Refer: RISK /INST/02, RISK /INST/17 & RISK/INST/21, SP/44-H, SP/44 U

Responsibility: Sr. Engineer Instrumentation/Associate /Inst Technician

A) WEIGHING BIN VERIFICATION

Frequency: -Monthly Planned Shutdown.

Procedure: All instrument engineers should follow this procedure while verifying the weighing bins.

1. Inform production control room Engineer & take permission for calibrating the Bins.
2. Skip the Bins from batching process and apply Emergency push button at site for all the VT, VC, Scrap Belt, CB3_11 & CB3_21.
3. Put off the compressed air line valve for gates. Gate in closed position

4. Ensure load cells are clear, unobstructed and in proper alignment.
5. All constrainers should be under proper tension. Bin should not touch any object from side, a visual gap to be ensured.
6. Ensure that weights are handled carefully to avoid falling on person.
7. The Verification of weighing Bins to be done in as it is condition without cleaning the Bins.
8. Load up to 30% of the calibrated span.
9. Load C.I weights duly certified one by one in batches of 200kgs for flux bins & 500 Kg for ore/coke bin and note down the readings in ascending order from SCADA.
10. Unload in batches of 200/500kgs for flux & ore/coke bin respectively & note down the readings in descending order from SCADA.
11. Both the Readings of PLC and weight Indicator should match, in case of deviation kindly adjust the 4-20mA.
12. Take signature from control room engineer and production Manager on the verification report filled for all the bins.
13. The error to be informed to production Head and based on the error Production dept to adjust 50% of the error quantity in books of account (receipt/Consumption) for the period of verification. This is applicable only for Coke as of now.

❖ Note:

1. Ensure the Bins calibration are verified along with Control Room Engineer and production Manager and take the signature on the calibration report/Control Room Checklist.
2. In BF2 for WB1 & WB2 note the weight of Channel & plate which are used to keep the C.I weight and take this weight as Zero reference before loading the C.I weights. While filling the record the weight of Channel & plate should be mentioned in remark.

B) <u>WEIGHING BIN CALIBRATION</u>

Frequency: - As and when error found in weighing Bin verification process is beyond acceptance criteria +/-5Kg**.**

Procedure:

1. Clean the Bin Completely ensuring no material in weigh bin, remove as much as possible material stick around bin.
2. Ensuing the above step follow the Calibration SOP of respective indicator. Calibration to be done for 30% of span, load C.I Weight accordingly.
3. After the calibration is completed, Unload in batches of 200/500kgs for flux & ore/coke bin respectively & note down the readings in descending order.
4. Take signature form control room engineer on the calibration report filled for all the bins.

❖ Note:

1. Ensure the Bins calibration are calibrated along with Control Room Engineer and RHMS supervisor and take the signature on the calibration report/Control Room Checklist.
2. In BF2 for WB1 & WB2 note the weight of Channel & plate which are used to keep the C.I weight and add this weight during calibrating the Span.

C) <u>WEIGHBRIDGE CALIBRATION</u>

Frequency: -**Quarterly.**

Procedure: All instrument engineers should follow this procedure whilst checking Calibration of the weighbridges.

1. Inform the concerned department (Dispatch/Raw material) in advance for calibration.
2. All weigh bridges to be cleaned by the weigh bridge owner before commencing the calibration activity.
3. Ensure load cells are clear, unobstructed and in proper alignment.
4. All constrainers should be under proper tension. Weigh Bridge should not touch any object from side, a visual gap to be ensured.
5. Calibration is to done with the help of external agency with 10 ton certified test weight.
6. Only certified vehicle to be used for calibrating the weigh bridge.
7. Calibration of weigh Bridges to be done in presence of Weigh Bridge owner.
8. Load Test weights duly certified one by one in batches of 1Ton & note down the readings in ascending order
9. Unload in batches of 1 Ton & note down the readings in descending order
10. In case if deviation exceeds acceptance limits (+-30Kg) inform to Weigh Bridge Owners with record and latter calibrate the weigh bridge and File the record.
11. File the records of Calibration/verification with signature of concerned department owner or representative assigned by owner.

D) WEIGHING TANK CALIBRATION

Frequency: -**Quarterly.**

Procedure: All instrument engineers should follow this procedure whilst checking Calibration of the weighing tanks.

1. Inform the concerned department (Operation) in advance for calibration.
2. Inform control room Engineer (PCI) & take permission for calibrating the weighing Tank.
3. Ensure load cells are clear, unobstructed and in proper alignment.
4. All constrainers should be under proper tension. Bin should not touch any object from side, a visual gap to be ensured.
5. Ensure that weights are handled carefully to avoid falling on person.
6. The Verification of weighing tank to be done in as it is condition.
7. Load up to 30% of the calibrated span.
8. Load C.I weights duly certified one by one in batches of 500 Kg and note down the readings in ascending order from SCADA.
9. Unload in batches of 500kgs respectively & note down the readings in descending order from SCADA.
10. Both the Readings of PLC and weight Indicator should match, in case of deviation kindly adjust the 4-20mA.
11. Take signature from control room engineer and production Manager on the verification report filled for all the bins.

Prepared By: Associate Manager– Electrical & Instrumentation PID1	**Reviewed & Issued By:** Management Representative	**Approved By:** Head – Electrical & Instrumentation PID1
Signature:	**Signature:**	**Signature:**
Date: 05/01/2022	**Date 05/01/2022**	**Date 05/01/2022**