DALMIA CEMENT (B) LIMITED DALMIAPURAM INSTRUMENTATION DEPARTMENT			
Issue No. 02	**Rev. No: 01**	**Effective Date: 22.05.2015**	**SOP/INST/06**
Issued By: S & P		**Approved By: Elect. & Inst Head**	
CALIBRATION CLAY WEIGH FEEDER			

Scope/Purpose : This SOP is applicable for calibration of clay Weigh feeder

Responsibility : Instrument section -Engineer

Accountability : Section In-Charge

PPE:

Tools:

1. Multi meter
2. Standard weights

Hazard Analysis:

Risks associated	Mitigating Measures
Leg Injury	Handle Standard weight carefully

Training needs:

1. First aid procedures

Procedure:

1. Clean platform properly.
2. Check load cells are free

TARING

a. Select volumetric mode in control panel.

b. In SLDC set "S" at 80% of belt speed from Log sheet.

c. Run the belt empty. Set ZDO to Zero in FB16 of SLDC.

d. After stabilisation of PID, note the number of count increments in the totaliser (W) in kg, for 5 revolutions and the time taken (T) in minutes, for 5 revolutions of the belt. Calculate the % rate of feeder for belt running empty.

$$\frac{W \text{ kg}}{\text{-------}} \quad x\ 6$$

$$\% \text{ rate} = \frac{\text{T min}}{\text{Range of weigh feeder (TPH)}}$$

e. Enter the % rate value at SH2 in FB19 of SLDC & store.

f. Set ZDO to original value in FB16 of SLDC.

STATIC CALIBRATION:

g. Load the calibration dead weights as per log sheet. After 'S' & 'P" values are equal, calculate the rate as below:

Calculated rate = Weigh of calibration dead weights x S x 0.06

h. If the calculated rate and the 'Y' value of SLDC are equal go to step 5.13, if not go to step 5.9.

i. Note the gain of FB 36 at SG03 and that is G3.

j. Calculate the new gain for FB36 as below.

$$\text{New gain G4} = \frac{\text{Calculated rate}}{\text{Y}} \times \text{G3}$$

k. Change the gain of FB 36 at SG03 with G4 value and store.

l. Repeat steps 5.7 & 5.8. Stop the belt and remove dead weights.

DYNAMIC CALIBRATION:

m. Select Gravimetric mode in control panel.

n. In SLDC set 'S' at 80% of the range from Log sheet.

o. Run the weigh feeder and allow material to flow through it for 30 minutes. Stop the weigh feeder.

p. Collect the material passed through the weigh feeder and weigh it in the weighbridge. This is actual weight.

q. Repeat steps 5.15 & 5.16 three times.

r. For the above three tests, calculate the actual rate (R1/R2/R3) as below:

$$\text{Actual rate (R1/R2/R3)} = \frac{\text{Actual weight}}{30} \times 0.06$$

s. For the three tests, calculate the % error (E1/E2/E3) in full-scale as below:

$$\text{E1/E2/E3} = \frac{\text{Actual rate (R1/R2/R3)} - S}{\text{Range of weigh feeder (TPH)}} \times 100$$

t. Calculate the average error as below:

$$\text{Average error} = \frac{(E1) + (E2) + (E3)}{3}$$

u. If average error is below +/- 1% stop calibration. If not note down the gain factor of FB 36 at SG03 and that is G4. Calculate new gain factor G5 as below:

$$G5 = \frac{\frac{R1 + R2 + R3}{3}}{S} \times G4$$

v. Change the gain of FB 36 at SG 03 with G5 value & store.

w. Repeat steps 5.15 to 5.21.

x. Note down readings in Log sheet.

3.

Emergency / Emergency Shut OFF:

1. **Use local stop if abnormal operation**

Records/Annexure:

1. JSA as enclosed below.

JOB SAFETY ANALYSIS: (JSA)

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CALIBRATION CLAY WEIGH FEEDER

Job Safety Analysis	Job: Clay Weigh feeder calibration	Date: 01 – 03 - 2013	Analysis by:	Reviewed by:
Title of employee doing job: Instrument Mechanic	Supervisor: Section Engineer	Department: Instrumentation	Section: VRM2	Approved by:
Req'd/recommended PPE: Insulated Tools, Safety shoes, Hand gloves				
Sequence of Basic Job Steps	**Potential Hazards**	**Recommended Safe Job Procedure**	**What Could Go Wrong**	**Corrective Action**
Clean platform properly.	Inhaling of Dust while breathing	Use Nose mask and safety goggles	Breathing problems due to inhaling of dust	Educate technician about PPE
Check load cells free	No hazard			
Then Put standard weights for " Span calibration"	May standard weight might fall on the leg	Carefully place the weight , and stand in a safe position while placing weight.	Injury in the leg / hand might happen while handling the weight.	Carefully place the weight , and stand in a safe position while placing weight

HEAD E & I

HEAD TECHNICAL