DALMIA CEMENT (B) LIMITED – CEMENT PLANT ARIYALUR INSTRUMENTATION MANUAL			
Issue No. 02	Rev. No: 00	Effective Date: 01.11.2019	INST/SOP/48
Issued By: M.R		Approved By: HOD - INSTRUMENTATION	
SOP for Robo Lab Cleaning			

Scope: To clean the robo lab equipment.

Responsibility: Instrumentation technician.

Accountability: Instrumentation - Section Engineer.

PPE:

- Safety helmet
- Safety shoe
- Mask
- Goggles
- Hand gloves

Tools required:

- Brush
- Cloths
- Vaccum Cleaner

Hazard Analysis:

Risks associated   Mitigating Measures

Robot Hit the person   Keep robot in manual position and press emergency button

Fine Dust   Use Nose mask

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Procedure:

Auto to Manual Mode:

- Ensure receiving station is not in operation. If it is in operation wait until completion of Operation.
- Change receiving station to manual mode by pressing Lab/Auto Manual Button and ensure manual indication at HMI Display.
- Ensure Robot is not moving. If it is moving wait until robot rest position
- Select the Robot Auto/Manual Key to Manual Position and Ensure Manual indication robot pendant.
- Press the robot emergency button and ensure robot emergency button was activated in pendant.
- Ensure Mill Press 1&2 and Ring Cleaning are not in operation. If it is in operation wait until completion of operation.
- Change Mill Press 1&2 to Manual mode by touching "Auto" button and ensure manual display at HMI display.
- Ensure Bottle magazine is not in operation. If it is in operation wait until stop.
- Change Bottle magazine to manual mode from DCS LIMS/OS Client from Bottle magazine faceplate.

Receiving station cleaning:
- Power off the system.
- Open the receiving station manual door and clean the hopper by brush and vacuum cleaner.
- Clean the dust around the hopper by brush and Vacuum cleaner and close the manual door.
- Open the receiving station bottom front cover and clean the inside sample filling and surroundings by brush and vacuum cleaner.
- Close the front door.
- Synchronize the receiving station as per SOP no: 39

Mill Press Cleaning:
- Power off the system

- Clean the material inlet and top of the machine by using clothes and vacuum cleaner.
- Open the left and right doors by using square Key.
- Clean the brush tool, ring cleaning and Grinder top by using clothes and brush.
- Clean the all sensors and cylinders by using clothes and brush.
- Clean the inside system by using Clothes, brush and Vacuum cleaner.
- Close the left and right door.
- Open the machine front door by using square key.
- Clean the ring magazine, material outlet to dedust and press tool by using clothes and brush.
- Clean the ring transport conveyor by using brush and vacuum cleaner.
- Clean the inside system by using brush and vacuum cleaner.
- Close the front door.
- Clean the ring cleaning system ring position and surroundings by using cloth, brush and vacuum cleaner.
- Synchronize the system as per SOP no:42.

Bottle Magazine Cleaning:
- Power off the system.
- Clean the top of the bottle magazine and motor by using clothes and brush.
- Open the door and clean the position disc and sensors by using cloth and vacuum cleaner
- Clean the robot position sensor by using cloth.
- Clean the sample bottle and surroundings by using brush, cloth and vacuum cleaner.
- Clean the inside system by using brush, cloth and vacuum cleaner.
- Close the door.
- Synchronize the system as per SOP no:43

Manual Drawer:
- Remove the cups and rings from manual drawer.
- Clean the manual drawer by using brush, cloth and vacuum cleaner.

- Open the manual drawer by pressing lock/unlock button and clean the drawer movement rails by brush.
- Close the manual drawer and press the lock/unlock button
- Put back the cup and rings on its original position.

Offline Particle size analyzer cleaning:
- Clean the offline particle size analyzer and its hopper by using cloths
- Clean the offline Particle size table by using brush and cloth.

Robot Cleaning:
- Clean the robot and fingers by using cloth
- Clean the robot panel and pendant by using cloth
- Clean the robo lab floor by using vacuum cleaner and soft broom.

Normalization to Robot auto Operation:
- Ensure all system ready for operation.
- Release the Robot emergency push button and ensure robot emergency fault released from pendant.
- Select the Robot Auto/Manual Key to Auto position and it will display warning as Automatic mode has been selected at robot pendant, Touch OK button and ensure auto indication in robot pendant.
- Press the Motor on button at robot panel and ensure motor on indication at robot pendant.
- Once robot in auto "Don't enter the Robot access area" and leave from room.

JOB SAFETY ANALYSIS: (JSA)

Job Safety Analysis	Job: Robo lab Cleanig	Date: 20.09.2017	Analysis by: Section Head	Reviewed by: HOD
Title of employee doing job: INST - TECHNICIAN	Supervisor: Section Engineer	Department: Instrumentation	Section: Robo lab	Approved by:
Req'd/recommended PPE: Safety helmet, Safety shoe, Mask, Goggles & Gloves.				

Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What Could Go Wrong	Corrective Action
1.ENSURE THE ROBOT IN REST POSITION	ROBOT MAY HIT THE PERSON	ENSURE THE ROBOT REST POSITION AND ROBOT KEY IN MANUAL MODE.	RESULT IN PERSON INJURY	CHECK THE ROBOT POSITION AND MANUAL MODE IN PENDANDT
2.CLOSE THE COMPRESSOR AIR LINE	POSSIBLE FINE DUST AND RUST PARTICLES COME FROM HOSE LINE.	WEAR GOOGLES, HAND GLOVES & NOSE MASK	COUGHING, EYE IRRITATION MAY OCCUR	USE GOOGLES, DUST MASK AND HAND GLOVES
3.CLEANING OF PANEL	POSSIBLE FINE DUST COME OUT	WEAR GOOGLES, HAND GLOVES & NOSE MASK	COUGHING, EYE IRRITATION MAY OCCUR	USE GOOGLES, DUST MASK AND HAND GLOVES