



Cleaning and operation of Manufacturing and Sugar Syrup preparation tank

1.0 OBJECTIVE

- 1.1 To lay down the procedure for cleaning and operation of manufacturing and sugar syrup preparation tank.

2.0 SCOPE

- 2.1 This procedure is applicable for cleaning and operation of manufacturing and sugar syrup preparation tank.

3.0 RESPONSIBILITY

- 3.1 Technical associate Production - for Execution
3.2 Officer/ Executive Production Department- for verification and implementation of SOP
3.3 Head Production Department- shall ensure compliance of the SOP.

4.0 DEFINITION(S)

- 4.1 NA

5.0 PROCEDURE

5.1 Cleaning

- 5.1.1 After completion of batch affix "TO BE CLEANED" label and during cleaning affix "UNDER CLEANING" label, checked by production officer as per reference SOP No. (Status labeling). If next product is the same as previous product (campaign production), follow batch-to-batch change over procedure. If next product is different from previous product, follow product-to-product change over procedure.

5.1.2 Batch-to-Batch change over procedure (Type A) :

- 5.1.2.1 Switch OFF the electric supply from tank's panel board.
5.1.2.2 Open outlet valves of tank and connect to drain point by flexible hosepipe.
5.1.2.3 Wash the inner surface of tank with purified water by connecting purified water supply through High jet pressure jet cleaner to spray ball for five minutes or till there are no visible traces of the product.
5.1.2.4 Close the outlet valves after complete water is drained out.
5.1.2.5 Mop the tank's outer surface with wet cloth followed by dry cloth.
5.1.2.6 Put 'CLEANED' status label having Unit, Department, Equipment name, Cleaned by, Checked by Production Officer, Date and finally certified by Quality Assurance (QA) as per reference SOP No. (Status labeling).
5.1.2.7 Record the details of cleaning in equipment usage sheet as per reference SOP (Making entries in equipment usage and cleaning log sheet).



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5.1.3 Product-to-product change over procedure (Type B): This procedure is applicable if -There is a change in product, if the batches have been processed for 7 consecutive days, if the equipment is taken for maintenance during processing and maintenance work continues for more than 24 hrs or maintenance work involves any part, which comes in direct contact with product.

5.1.3.1 Switch OFF the electric supply from tank's panel board.

5.1.3.2 Open outlet valves of tank and connect to drain point by flexible hose pipe.

5.1.3.3 Wash the inner surface of tank with purified water by connecting purified water supply through High jet pressure jet cleaner to spray ball for ten minutes or till there are no visible traces of the product.

5.1.3.4 Open the triclover clamps and valves and clean them with purified water.

5.1.3.5 Refit the valves and SS process lines and connect the tank to pump with flexible tubing.

5.1.3.6 Take 500 liters of purified water for 3000 liters manufacturing Tank / 400 liters of purified water for sugar syrup preparation tank / 300 liters for 1000 liters Manufacturing tank and raise the temperature to 60-65°C. Circulate the hot water supply through High jet pressure jet cleaner to spray ball for 10 minutes and drain the water completely.

5.1.3.7 Finally rinse the tank with 30 liter of purified water.

5.1.3.8 Inform the Q.A. to collect swab/rinse water sample if required and drain the water completely.

5.1.3.9 Close the outlet valves of tank.

5.1.3.10 Mop the tank's outer surface with wet cloth followed by dry lint free cloth.

5.1.3.11 Record the details of cleaning in equipment usage sheet and check the cleaning activity as per Annexure I (Cleaning checklist of tanks).

5.1.3.12 Protection of clean equipment: Shrink wrap or apply aluminium foil on all the ports, outlet points and tightens the manhole lid if the equipment is not planned for use within a day.

5.1.3.13 Put 'CLEANED' status label having Unit, Department, Equipment name, Cleaned by, Checked by Production Officer, Date and finally certified by Quality Assurance (QA) as per reference SOP No. (Status labeling).

5.2 Set up

5.2.1 Ensure that tank is cleaned.

5.2.2 After line clearance from QA, put "EQUIPMENT STATUS" label on the equipment.

5.2.3 Close the outlet valve of the tank and fix blank (DUMMY) on outlet line.

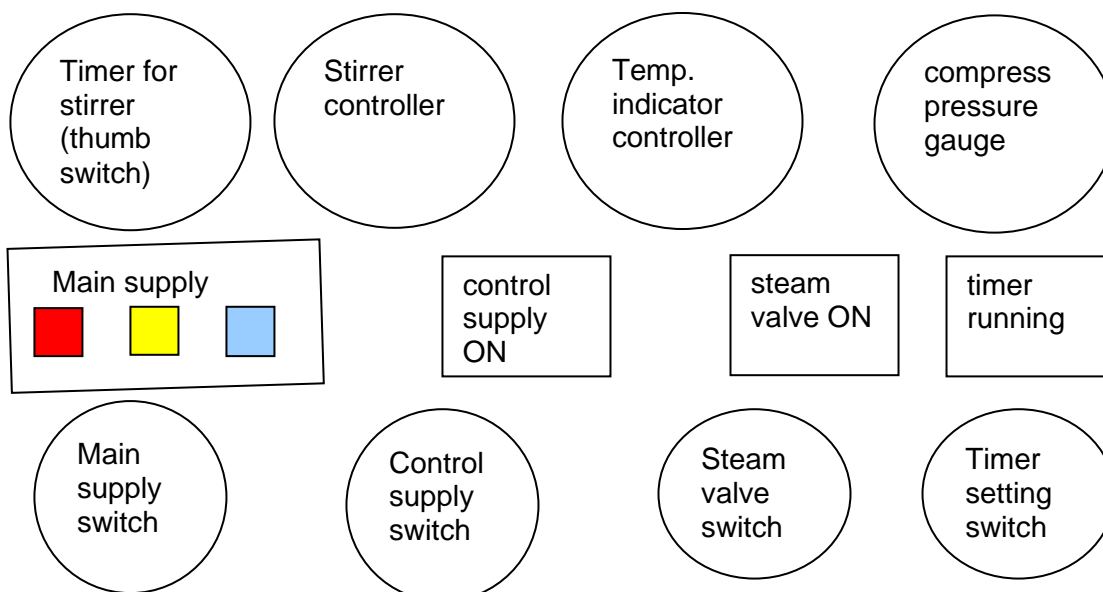
5.2.4 Open the bottom drain valve followed by air vent valve of tank's jacket and ensure that it is completely empty. Close air vent valve and drain valve of tank's jacket.



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- 5.2.5 Switch 'ON' the electric supply from tank's panel board.
- 5.2.6 Set the temperature if required by pressing at a time the SET POINT key and increasing/decreasing (↓/↑) key.
- 5.2.7 Fix the required RPM of stirrer by rotating knob in clockwise or anticlock wise direction on VFD.
- 5.2.8 Switch 'ON' the compressed air valve from tank's panel to regulate the steam supply to tank jacket through solenoid valve.
- 5.2.9 Ensure that steam trap valve No 01 and 02 is open in initial stage until condensed water is removed and then after close the valve No 01.

5.2.10



5.3 Operation

5.3.1 In case manufacturing process require steam heating of materials

- 5.3.1.1 Load the material into the tank and switch ON the stirrer from the main panel.
- 5.3.1.2 Open the steam inlet valve.
- 5.3.1.3 Monitor the jacket pressure of the tank from pressure gauge fitted on the triclover valve throughout the operation, pressure should not be more than 2.0 Kg/cm² and temperature 90°C. If the pressure/Temperature exceeds the required limits, reduce the steam supply by adjusting steam inlet valve.
- 5.3.1.4 As soon as the required temperature reaches start further process.
- 5.3.1.5 Continue the stirring until Process complete.
- 5.3.1.6 After completion of process or required achieved temp.
- 5.3.1.7 Close the steam inlet valve.



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5.3.1.8 Open the drain valve of tank's jacket from the bottom. Ensure the complete drainage Of steam from the tank's jacket.

5.3.2 In case require cooling of materials

5.3.2.1 In case cooling of the content of tank is required after steam heating, first drain the Entire steam from the tank jacket by opening the drain valve of the tank jacket.

5.3.2.2 Open the outlet valve of cooling water from the top of the tank jacket followed by Opening the inlet valve of cooling water from bottom.

5.3.2.3 Close the cooling water supply on attaining the required temperature.

5.3.2.4 After the completion of operation, Switch 'OFF' electric supply from panel board

5.4 Affix the status of "TO BE CLEANED" during NO activity and affix "UNDER CLEANING" during cleaning of the tank.

5.5 Record the details of operation of tank in equipment usage record as per current version of SOP (Making entries in equipment usage and cleaning log sheet).

5.6 NOTE

5.6.1 Ensure water level in **COOLING POT** before start the stirrer.

5.6.2 Ensure air pressure in the unit is not less than **4 Kg/cm²**.

6.0 ABBREVIATION (S)

6.1 SOP : Standard Operation Procedure

6.2 No. : Number

6.3 BMR : Batch Manufacturing Record

6.4 RPM : Revolution per minute

6.5 VFD : variable frequency drive

7.0 REFERENCES

7.1 SOP: Status labeling

7.2 SOP: Making entries in equipment usage and cleaning log sheet

8.0 ANNEXURE (S)

Annexure no.	Title of Annexure	Format no.	Mode of Execution
Annexure I	Cleaning checklist of tanks.		Log Book

9.0 DISTRIBUTION:

9.1 **Master copy** : Quality Assurance

9.2 **Controlled copy (s)** : Production department (01), Quality Assurance (01)



PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

Cleaning and operation of Manufacturing and Sugar Syrup preparation tank

9.3 Reference copy (s) : Production department (01)

10.0 REVISION HISTORY

Sr. No.	Version No.	Change Control No.	Reason (s) for Revision	Details of revision	Effective Date



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QUALITY ASSURANCE DEPARTMENT

Cleaning and operation of Manufacturing and Sugar Syrup preparation tank

ANNEXURE I

CLEANING CHECKLIST OF TANKS

Name of the Equipment:

Previous product:

Batch No. :

Equipment I.D. No. :

Date :

Sr. No.	Activity	Activity Performed
1	Open outlet valves of tank and connect to drain point by flexible hose pipe.	
2	Wash the inner surface of tank with purified water by connecting purified water supply through High jet pressure jet cleaner to spray ball for ten minutes or till there are no visible traces of the product.	
3	Open the triclover clamps and valves and clean them with purified water.	
4	Refit the valves and SS process lines and connect the tank to pump with flexible tubing.	
5	Take *500 liters of purified water for 3000 liters manufacturing Tank / *400 liters of purified water for sugar syrup preparation tank / *300 liters for 1000 liters Manufacturing tank and raise the temperature to 60-65°C. Circulate the hot water supply through High jet pressure jet cleaner to spray ball for 10 minutes and drain the water completely.	
6	Finally rinse the tank with 30 liter of purified water.	
7	Drain the water completely.	
8	Close the outlet valves of tank.	
9	Mop the tank's outer surface with wet cloth followed by dry lint free cloth.	

Checked By (Prod.)
Sign/Date

Verified By (QA)
Sign/Date

Note : Put '√' mark if activity performed and put 'X' if activity not performed.
* Strikeout the process which is not applicable.