Beepee Coatings Private Limited
Anand, Gujarat

Project : In situ filtration technology for Solvent based paints

Presenter :

Mr. Dhaval Rupareliya (Manager – Engineering)

Mr. Jaymin Trivedi (Manager – Quality Control)

Project Title : In situ filtration (self cleaning filtration) technology for Solvent based paints

Slide 1

Trigger of the project

- Frequent change of nylon mesh during filling of paint leads to productivity loss and also generates hazardous waste in the form of waste paint and nylon bags. This was taken up by a team comprising of Production, Engineering, Quality and HR member.

Uniqueness of the project

- The project was unique for this plant and workforce working over here. The SS mesh is placed inside the filter. The Teflon scrapper provided which moves inside the filter for cleaning the waste. Based upon the requirement, we can set the timing for operation of Teflon scrapper.

Date of commencement & Completion

- Project was initiated in Sept'19 with the possibility to check alternates for reduction in hazardous waste generation of paint production section. Date of commencement : 20/12/2019 & Date of completion : 25/12/2019

Major Milestone achieved

- Involvement of advance machine leaving out old machine and heading a new step towards an automated plant which ensures precise filling.

Tangible Benefits

Slide 2

- Measure and indicate savings through project implementation on Energy; Water; Carbon and Toxicity and therefore a picture of cost benefit
- List gains on productivity /downtime / cycle time reduction
- Man power saving : 15 man days per month
- Sieve saving : 20 sieves (Nylon Bags)per month
- Total money saving : Rs.10,400 / month (Rs.350/day labor charges & Rs. 25/- sieve)
- One time setting for filling instead of frequently setting in traditional filling machine
- Self-cleaning design ensures no stoppages or slowing of throughput. Time saved per batch result is increase in productivity by
- Totally enclosed to eliminate contamination and safeguard operators from harmful fumes
- No continual costs of replacing filter media and no disposal costs
- Enables removals of wide range of contaminants maximize productivity

Intangible Benefits

Slide 3

- People/society benefits
  - Safeguard the health of operators
  - Improvement to safety of operators
  - Boost the reliability
- Moral /motivation
  - Increase in morale of the people
  - Operator feel that they contributed towards the Envt.
  - Operator feel happy as there is no smell during filling.
- Skill up gradation
  - Adaptation to new way of filtration
  - Machine knowledge
- Attitude shift/development
  - Operators confidence over the company gets boosted up.
  - Adaptability towards the new technology

Replication potential and progress of project assimilation cross functional / within group companies

- It can be helpful for Paint, Ink and Petrochemical Industries
- Evidence on where and when implemented with photos before/after;
- What next for spreading benefits?

  Benefits sharing with other team mates.

  The similar application will be replicated in various plants across our facility.

Replication potential of project within sector

a) Steps initiated
   1) Capex Proposal
   2) Implementation at other areas and other plants

b) Achievement sharing mode: demo/forum/seminars)
   - Seminar
   - Other knowledge sharing platforms
   - Tool box talks on shopfloor
   - In-house meetings

List of challenges faced and brief on countering

Technical

- Adjusting the stroke time for the filter cleaning operation
- Adjusting the Pressure of material for smooth flow.

Administrative

- Involvement the operators right from the initial stage of project.
- Aligning the user department for the installation and commissioning part.

Maintenance

- Preventive Maintenance schedule finalized.
- Spares management initiated to ensure quick response to any unforeseen breakdown

Operation

- Initial resistance to change from operators w.r.t. machine usage. This was overcome by informing them about health benefit for them.

Achieving National Benchmarks Standards

- **Environment parameter: energy/water/carbon/toxicity and emission**

➢ Adaptation of established technology in filtration
➢ Hazardous Solid waste reduction
➢ Eco-friendly environment during packing

- **Comparison on Men/Material/Methods/Technology/ Measurement**

➢ Elimination of manual intervention to auto filtration
➢ Newer Technology
➢ Elimination in the usage of nylon bags
➢ Reduction in waste paint generation

Priority plans on fast track for +1 year and +2 year, including resource requirement

+1 Year

- Monitoring Performance of Self cleaning filter.
- Replication potential to be evaluated by technical design team and R&D.
- Subsequent planning for implementation.

+2 Year

- ✓ Proposal and approval in Capex for replication at relevant locations
- ✓ Procurement and Installation of machine

Top ten best practices which will form the core of approach for +1 and +2 year

Slide 9

1. Rain Water Harvesting factility across the plant
2. HW Source Reduction (re-use of powder spills)
3. Usage of GAF Filter in Resin Filtration process
4. Close loop system for addition of solvent/monomers.
5. Replacement of Lead Free Raw materials
6. Zero Liquid discharge facility
7. Customized scrubber facility at resin house
8. Zero fresh water consumption by utilization of Treated water from STP Plant
9. Blower system at paint processing equipment for elimination of dust generation at the shop floor
10. Re-use of Water based sludge in in-house manufacturing of bricks

Major learnings from the project implementation

1. Challenging the status quo of the mind set
   - Considering > 35 year old facility
   - Considering workforce with > 25 year experience
2. Adaptation to newer filtration technology
   - Never done before experience
   - 1st timer within company
3. Alignment of team for their involvement to make it success
   - Understanding of new technology
   - Acceptance by all

Thank You

Self Cleaning Filter at Solvent Base Paint