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CASE STUDY ON HOW EVEREST WORKED WITH ONE OF OUR CUSTOMERS TO SAVE 17 LAC/YR.

CUSTOMER: (CRR 616, 977)
Novosis Green Technologies Llp
CNSL Processing- Cardanol Production

Manufacturer & Supplier Of Cardanol & Its Derivatives From Natural & Renewable Chemical Cashew Nut Shell Liquids (CNSL)

PROCESS BRIEF:

PROCESS : Continuous Distillation under Vacuum -WFE
PRODUCT : Cardanol
FEED RATE : 1000 KG/HR
PUMPING : 7000 m3/hr.
VACUUM : 0.5 TORR.

PROBLEM STATEMENT:

1) Client was using a combination of Mechanical vacuum booster 7000m3/hr+ 1800 m3/hr + 300 m3/hr steam ejector to create vacuum into the WFE.
2) Use of partially WET vacuum systems, typically a Steam Jet Ejector System which caused generation of excessive effluent which needed to be disposed of/ treated leading to additional cost of effluent treatment.
3) Mixing of Cardanol with motive steam/water leading to frequent problems of vacuum fluctuation which resulted in inconsistent product quality. Choking of ejector nozzle, Effluent disposal problem.
4) Everest approached the client to change the backup steam ejector with a Dry screw vacuum pump.
5) Identification of generation of Polymerisation property of Cardanol upon compression inside the Dry screw vacuum pump was found for some days, which was earlier unknown by the production/process team at ground as it was not mentioned in there initial RFQ. This problem was also addressed by use of appropriate safety accessories installed by Everest at site.

PROBLEM SOLVING:

1) Conversion of Partial WET SYSTEM to 100% DRY VACUUM PUMPING by installing our EHS-CX-400 system restricting/eliminating any effluent being generated thus saving huge cost for customers in terms of effluent treatment and Product Quality.

2) More than 95% recovery of Solvent at the intermediate condenser unit of vacuum system by use of INTERMEDIATE CONDENSER UNIT AND VACUUM TRAP between Booster and Main vacuum pump leading to high cost being saved by the customer in terms of re-use of the recovered Cardanol vapor.

3) A suitable Intermediate condenser unit and vacuum trap designed & installed by EVEREST vacuum system to arrest any excessive vapour/process contaminant from entering into the vacuum system.

4) Consistent & good quality vacuum level throughout the process as high efficiency dry vacuum systems are deployed.

ADVANTAGES & BENEFITS:

1) Drastic reduction in utility cost as NO STEAM consumption & Cooling Water consumption reduced by more than 80%. Approximate saving of 12 Lacs/yr in steam cost.

2) Consistent & clean vacuum leading to Enhanced product quality.

3) Elimination of effluent treatment cost, approximate at 2.4 lakh/yr saving.

4) Cardanol recovery at intermediate condenser, approximately 2 ltr/hr, saving about 3.0lac/yr.

5) High ROI on investment & great benefits as 100% DRY TECHNOLOGY.

6) Low/No Lag in Startup/Shut Down in Dry pumping as opposed to WET pumping which is dependent on boiler steam generation.

EQUIPMENT SUPPLIED:

EHS-CX- 400 with Intermediate Condenser and Vacuum trap unit
Client already had two MVB, 7000 & 1800 m3/hr.