



**VISHWKARMA GOVERNMENT ENGINEERING COLLEGE,
CHANDKHEDA
CHEMICAL ENGINEERING DEPARTMENT**

Brief Report on Industrial Visit to Harsh Organo Chem,Vatva.

Name of Department/Organizer	:	Chemical Engineering Department
Date & Time	:	27/02/2020
Venue	:	2207, Phase-IV, G I D C, Vatva, G I D C, Ahmedabad, Gujarat 382445
No of Participants	:	53 Students and 2 faculties

Objective of the Event

4th semester students of Chemical Engineering Department from Vishwakarma Government Engineering College, Chandkheda visited industry Harsh Organo Chem,Vatva on 27/02/2020. This visit falls under major activity head of “Technical/ Research skill” with sub-activity head of “Industrial / Exhibition Visit with Report”. The visit was organized for one day on 27/02/2020. Total 53 students took benefit of this industrial visit. These students were accompanied by following faculty members.

1. Prof. Jalpa Shah (Asst. Professor, Chemical Engg. Department)
2. Prof. Jay Trivedi (Asst. Professor, Chemical Engg. Department)

Details of the Event

Harsh Organo Chem (I) Pvt Ltd, established in 1982, has been one of the finest companies for manufacturing different types of Intermediates. It is an ISO 9001 2008 Approved Company. Many of the world's leading companies choose Harsh Organo Chem (I) Pvt Ltd for the raw material in their products.

Sr. No.	Item	Time
1	Reporting Time	02:00 PM
2	Introductory talk about Objective and its activity and lunch	02:00 PM to 02:30PM
3	Visit to Plant	02:30 PM to 03.00 PM
4	Group photo	03:00PM to 03:15 PM

Observations

Process Product: - Dye intermediates like H-Acid and K-Acid

- There is a wall built to prevent the leakage of acids to the plant called as Dyke.
- Then after inside we observed small storage tanks which keep the raw materials temporarily and are used for further process.

Following operations were observed:

- **Storage tanks:** we observed HNO_3 , Oleum and H_2SO_4 tanks on the right side of the plant.
- **Agitator:** It is covered for insulation and is aided with bracket support. Agitator vessel was fabricated by bricks because it comes in contact with acids. Also, we observed sight glass which is used to measure liquid level.
- **Valves:** Such as globe valves, ball valves, gate valves etc. We learnt that when a valve handle is perpendicular it's closed.
- We noted a steam leakage in the plant and it seemed to be a loss for the company.
- **Top suspended basket centrifuge:** In that, the cake which formed was wet. The liquid removed from the outlet was sent further to the effluent treatment section.
- **Plate and frame filter press:** The wet cake was fed to the filter and liquid sent to the effluent treatment section.
- **Effluent collection tank:** collected effluent water which was to be treated. In that tank, two inlets were provided one being water from one pipe and the other being effluent.
- **Tray dryer:** Inside it contains several trays with wet cake and provide heat for the drying.
- **Cyclone separator:** To form fine particles further it was fed to separator where at the end C/S area decreases.
- **Bagging area:** Where H-acid and K-acid stored.
- **Scrubbers:** 3 in a series observed. It is used to remove NO_x and SO_x . Final one of the scrubbers has the shape like that of a venturi.
- Finally, the **Chimney** is used to remove the gases. On the top of the chimney we can take a sample called stack gas and check for the concentration of NO_x and SO_x .
- **Bag filter:** Used to remove particulate matter in the gas. Very fine black particles observed.
- **Jacketed reactor vessel:** With several inlet nozzles for Pressure valves, Temperature valves etc). Jacket was observed which covered around 80% of the vessel. It had two outlets, one for jacket outlet and other for reactor outlet.
- **Glass wools:** Glass wools are covered on the agitator blades to prevent corrosion of metals because acids are corrosive.
- Equipment parts & Equipment which are intended to install: (Agitator shaft, propeller blades, Heat exchanger etc) observed.
- NH_3 used as a refrigerant to cool the hot water from the plant.
- In case of any emergency they have safety masks and safety clothes.

Factors need to be improved

- Safety measures should be improved.
- Actions needed to be taken to prevent leakage of utilities.
- Cleanliness to be maintained.

