VENKATESH MAHAJAN SENIOR COLLEGE, OSMANABAD.

DEPARTMENT OF CHEMISTRY

ONE DAY INDUSTRIAL VISIT

DHARASHIV SAKHAR KARKHANA AND OXYGEN PLANT, CHORAKHALI

DIST. OSMANABAD

ACADEMIC YEAR 2021-22

(9 APRIL 2022)

Transportation: Private Cars (Cruisers)

Students: Total 62 students including (B.Sc. II, III).

Faculty Accompanied: (Total 03)

Dr. Makarand Sripad Choudhari. (Head, department of chemistry)

Mr. Nitin Ajinath tupsamindar

Mr. Shivaji Narayan Khadake.

INDUSTRY PROFILE:-

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali Dist. Osmanabad, an ISO certified company, specialized in Sugar & Distillery Products, Alcohol /Pesticide and also Asia's no. one Oxygen produced industries apart from user specific requirements. One of the leading manufacturers of India requirements of value based Specialty Chemicals.

Sugar Industry has been consistently adding capacities and fine tuning process to provide quality products at lowest cost to the customers. World over, Alcohol technology is a closely guarded process with only a few handful companies having access to such technology. Sugar Industry for the first time in India tested on an indigenously developed technology and developed it further over a period of time.

Today, Industry Products are accepted in international markets and have gained the distinct export quality status, which makes it one of the few companies in India having the potential to match the stringent international quality standards for which we have been awarded ISO- Current Year Certification apart from appreciation and continuous orders from global majors for our product range.

PURPOSE OF INDUSTRIAL VISIT:-

1) To interact the students with actual industry persons.

2) To make them aware of the industrial procedures required to enter in any company.

3) To experience the working environment in industry and visualize the all the important Departments in the Industry.

4) Interaction of students with the peoples of all important departments.

5) To prepare the students for the selection of carrier path in different departments of industry.

6) How the Oxygen is produced and distributed in Covid -19 pandemic.

STRENGTH BEHIND THE VISIT

Respected sir Dr. Prashant Chaudhary has approved the industrial visit and encouraged the committee for organizing similar kind of activities for the benefit of students.

When we arranged Guest lecture for Certificate Course at that time person from the industries Dr. A.M. Deshmukh (President Microbiologist Society of India) has suggested that undergraduate students should visit

the industries to experience the actual working environment and the processes. Head Department of Chemistry , Dr. Makarand Sripad Choudhari has also suggested the industrial visit for the chemistry students will be helpful to face the interviews. Dr. Makarand Sripad Choudhari has taken continuous follow-up with "Sugar Industry and oxygen plant" to organize this Industrial visit, Mr. Nitin Tupsamindar, Mr. Shivaji Narayan Khadake, has encouraged the students to participate in the Industrial Visit. All the teaching and non-teaching staff, student volunteers has supported this tour.

GROUND REPORT

According to the tour and time plan we three cars were departed and reached the Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali Dist. Osmanabad**,** Sakhar Kharkana at 11:00 am, The Security officer Welcome us and guided for the entry. Then we madetwo batches of the students were divided and one batch was headed with Doke, Aditya Jain and second batch was with Santosh Raut. Lecture room was very sophisticated where the tea and biscuits were served for the students during the lecture.

They said the industry Contains 10 subunits and each subunit using for the synthesis of different products. They explained how they are doing reaction in big reactor (ton Scale) as well as how they purify that synthesized product via fractional distillation. Production of various alchols such as ethyl alcohol, methyl alcohol etc. Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali Dist. Osmanabad.

They explained this all products are explosive still that industry synthesized all products successfully since last 20 years is because of their good skill of chemical handling and safety handling. At the end we have felicitated with rose flowers and they gave opportunity to our students to give their resume to Sugar Industry for jobs as chemist. Head Department of chemistry thanks to the Head/Manager Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali Dist. Osmanabad their team who guided us during the visit. At the end of visit, we all took the different types of delicious meal at Ramling Temple, Yedshi. As per plan we reached at Venkatesh Mahajan Senior College, Osmanabad at 5 pm.

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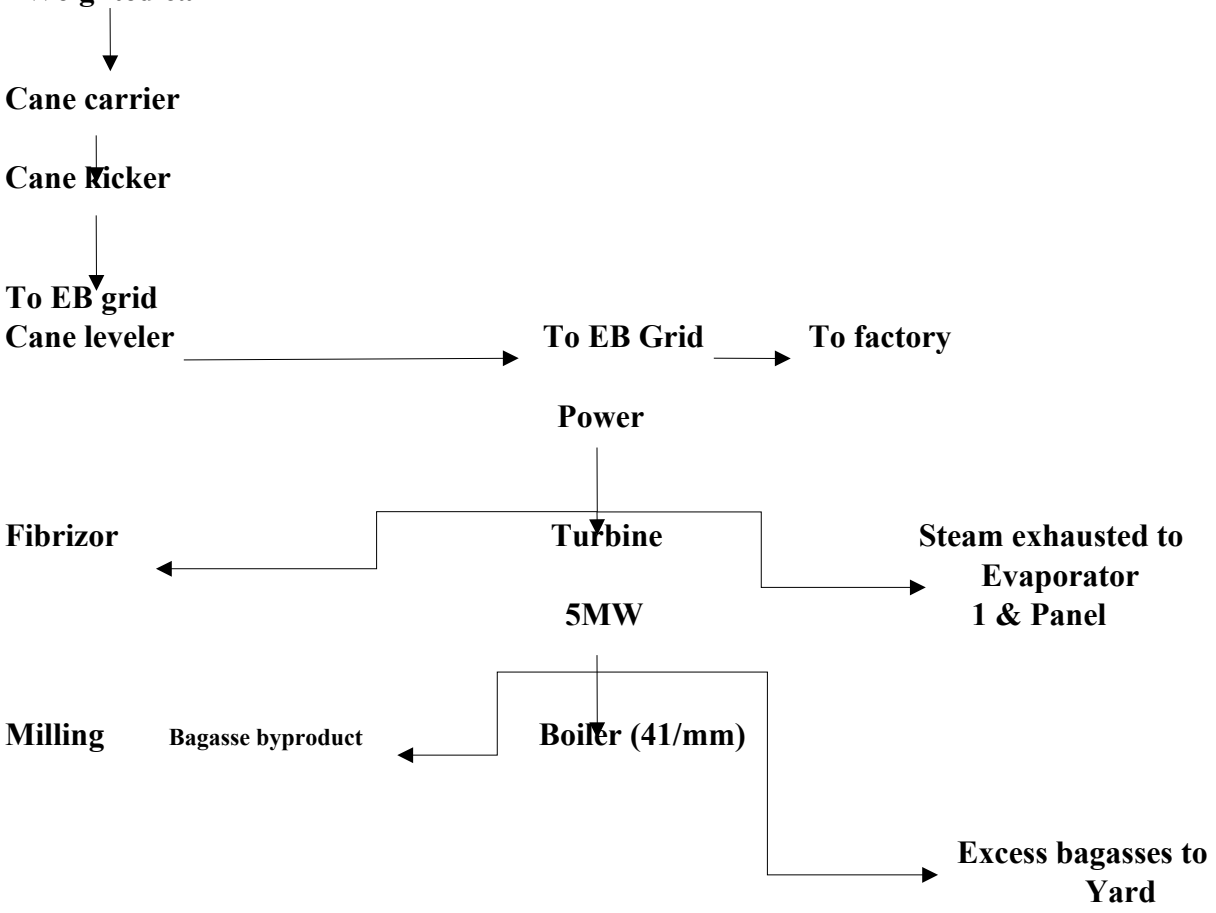
ACTUAL WORK

Flow Chart

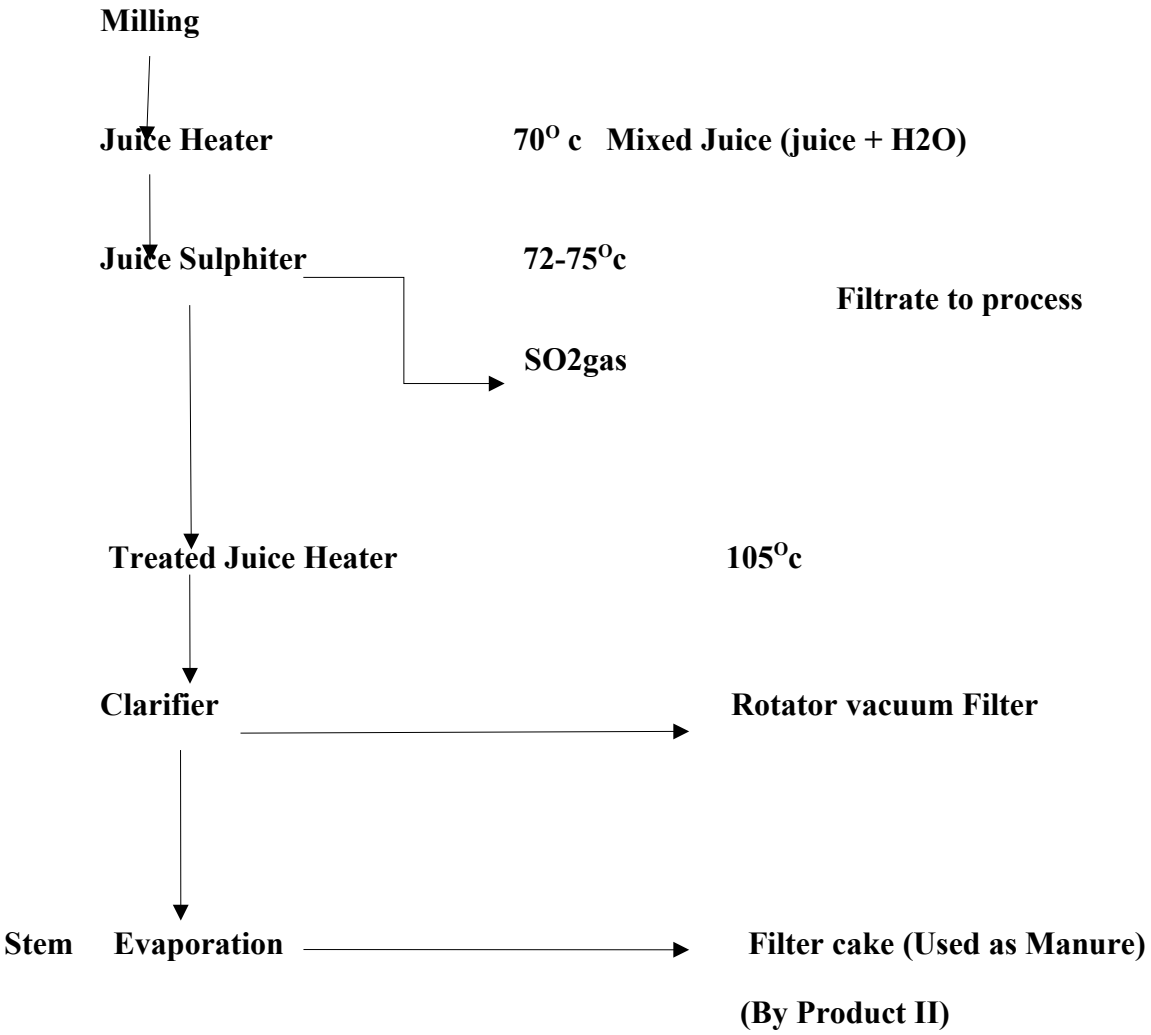
Step 1

1) Weighted can

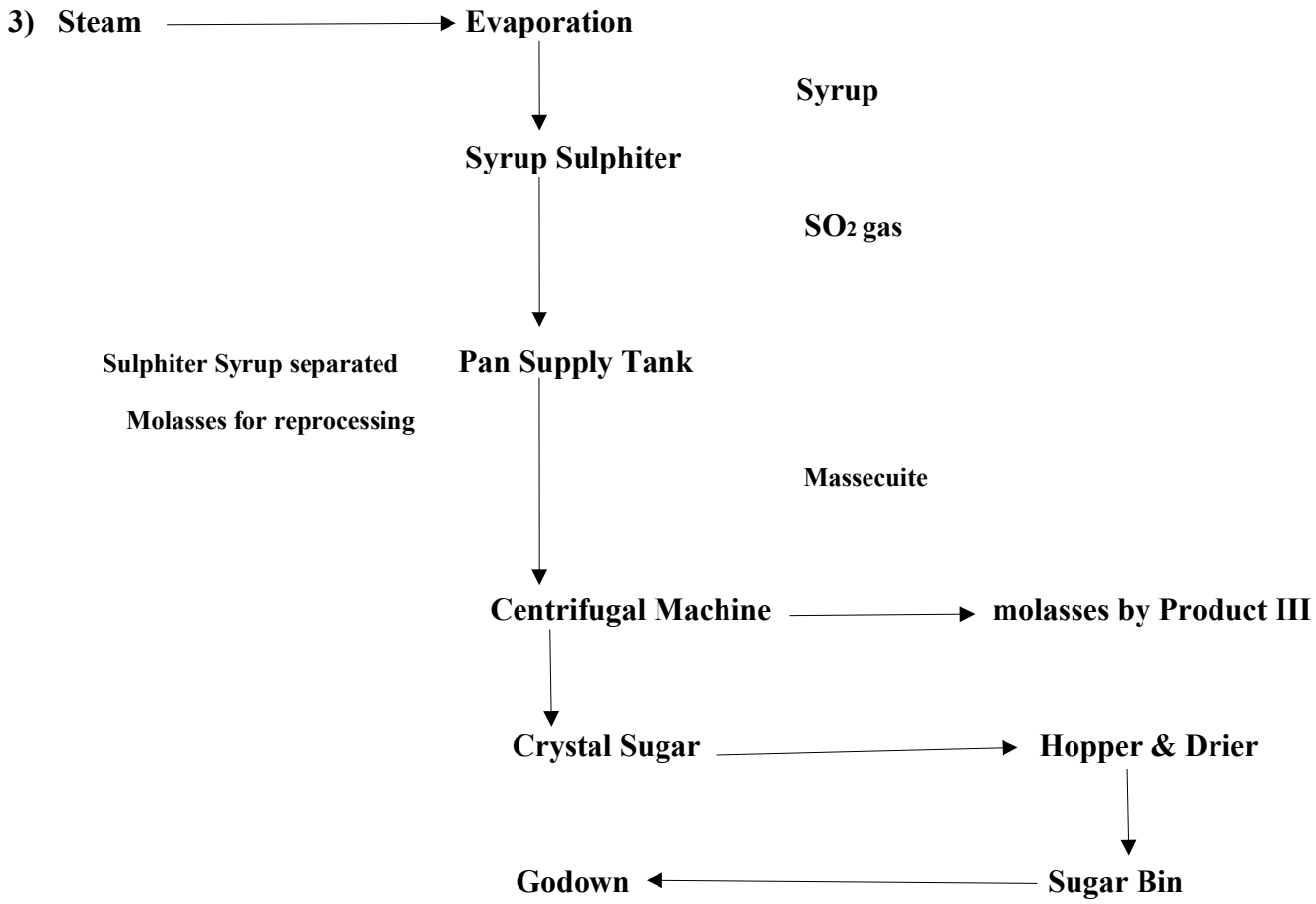


Step 2

2)


Milling
Juice Heater
70O c
Mixed Juice (juice + H2O)
Juice Sulphiter
72-75Oc
Filtrate to process
SO2gas
Treated Juice Heater
105Oc
Clarifier
Rotator vacuum Filter
Stem
Evaporation
Filter cake (Used as Manure)
(By Product II)

Step 3



SCHEMATIC REPRESENTATION OF SUGAR CANE

- Sugar cane from the field is weighted in bridge.
- Weighted cane from the weighbridges is unloaded in to the feeder table.
- Then it is dropped into cane carrier which carries the sugar cane for preparation.

It is prepared by the preparatory devices:--

1] Cane Kicker

2] Cane Leveler

3] Cane Fibrizor

- Prepared cane from the Fibrizor is taken to milling tandem by Rake Carrier.
- Prepared cane passes through four consecutive mills, each mill consists of three cylindrical rollers.

SCHEMATIC REPRESENTATION OF MILLING

- All the 4 mills are driven by powerful 500 HP DC motors.
- Hot water added at discharge of 3rd mill to extract maximum sugar cane, juice from the bagasse.
- Final discharge of bagasse from 4thmill is carried to Boiler through Rake elevator.
- Five feeders of Boiler feeds bagasse into the Furnace
- Excess bagasse is dropped at Yard, later it will be used during mill stoppages.
- Steam generated from the Boiler is sent to set of 2.5 MW power turbines.
- Generated power is distributed to the mills through distribution panels, surplus power are exported to TNEB Grid.
- Extracted juice mixed with water is sent to the boiling house for further processing.
- The juice is heated in juice heater at 70°c .
- In Order to bleach & maintain PH of the juice it is treated with milk of lime & sulphur dioxide.
- The treated juice is then further heated at 105°c.
- Then juice goes into the Clarifier tank, it takes over 2 hrs. To settle impurities falls to the bottom of the tank.
- The settled mud is pumped to Rotary Filters where the mud is filtered from the juice.
- Filtered juice is returned to process further while the press mud cake remains outside the drum is sent out.
- As there is no waste in **SUGAR INDUSTRY** this press mud cake is used as **MANURE IN SUGAR CANE** fields.
- The clarified juice collected from the Clarifier take now boils in series of five Evaporators.
- This brings the concentration of sugar up from 15% - 60%. The juice is evaporated to syrup stage.

- The syrup is treated with ***Sulphurdioxide gas.***
- •The sulphited syrup is pumped to vacuum pans for further concentration &formation of sugar grains.
- Microscopic sucrose crystal (Slurry) is poured into the syrup to develop crystals inside.
- Formation of sugar crystals inside the vacuum pans.
- As the water in the syrup boils away workers regularly check how the sugar is crystallizing.
- Once the crystal reaches its desired size it is dropped down to the centrifugal machine.
- Loading of dropped masse cutie from crystallizer.
- This machine operates between 50 –1100 rpm which draws the molasses to outer shell of the machine while the sugar crystals remains in the basket.
- Hot water is sprayed inside the basket to wash crystals.
- The separated molasses from the basket is taken to the pan section for reprocess.
- Sugar crystals inside the basket are dropped at hopper then goes to the drier.
- Hot air is blown into the drier to remove moisture content from the sugar crystals.
- Dry sugar from the drier is taken to grader by the bucket conveyor; here powder sugar is graded down.
- Sugar with standard size is carried to sugar storage bin.
- Finally the sugar is bagged in PP bags of 50 kg.
- Bagged sugars are carried by belt conveyors & stacked in go down.
- On other side stacked bags are delivered to consumers.
- Final molasses which has less sugar content is stored in tank, it is used in distillery plants and baking industries.

REPORT BY

1} Pawar Abhishek
2} Deshmukh Dhananjay
3} Yadav Rohan
4} Amruta suryawanshi
5} Omkar kulkarni
6} Ghavane Ashok
7} Mundhe Ashwini

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*INDUSTRIAL VISIT *

DHARASHIV SAKHAR KARKHANA AND OXYGEN PLANT, CHORAKHALI DIST. OSMANABAD

Principal Dr. P.G. Choudhary , Dr. M.S. Choudhari, Mr. Nitin Tupsamindar, Mr. Shivaji Khadke , and all Chemistry department students

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali


GPS Map Camera
Osmanabad, Maharashtra, India
9WCV+323, Osmanabad, Maharashtra
413405, India
Lat 18.37128° Long 75.942998°
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Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali Dist. Osmanabad

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

Distillary plant explain by Mr. Gujar Amar

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

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Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

Oxygen plant Head Mr. Sanjay Patil explain working of plant

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

Oxygen plant

Dharashiv Sakhar Karkhana and oxygen Plant, Chorakhali

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