

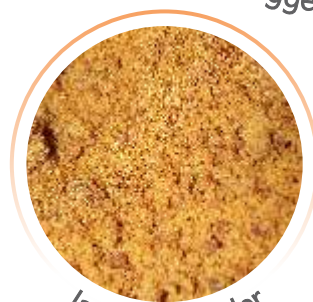


# Modern Jaggery Production Technology

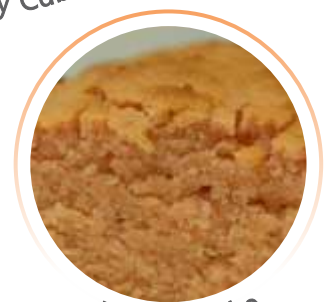
"Boiler Free Unit and  
100% Bagasse Saving"



Jaggery Cubes



Jaggery Powder



Jaggery Cake

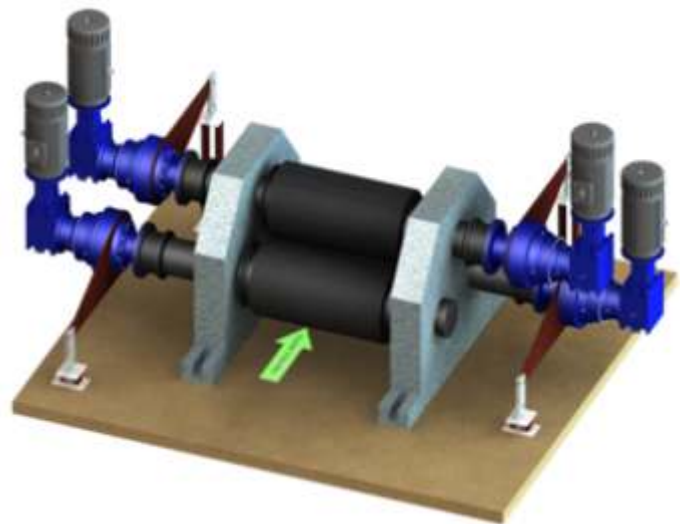
## INTRODUCTION

Sugarcane is a prominent crop of India which is mainly utilized for making sugar and Jaggery. Traditional Jaggery production process loses major portion of sugar in bagasse. By adopting modern manufacturing process; energy efficient equipment; standard process for extraction & clarification; Spray Electrical Dehydrator (MVR technology) for evaporation & concentration with very low electrical energy demand, very high yield/recovery and 100% bagasse saving by Spray Engineering Devices Limited (SEDL) Boiler less Solid Jaggery Production Process.

For sustainability of the Jaggery (Gur) units with minimum energy consumption, Jaggery production technique needs a radical change in order to increase yield/recovery and fuel saving to sustain in the future. Now the commercial availability and acceptability of boiler free Jaggery production becomes need of the hour to sustain future profitability in these Jaggery production units.

## JUICE EXTRACTION

Extraction of juice is done in complete mechanical way under a high degree of energy efficient Juice Extraction system, which consists cane conveying followed by way with two nos. of cane Cutter, Four Milling Tandem and each mill having three rollers with Planetary Drives. The milling system is installed with bath imbibition for extraction of complete sugar from bagasse. The Juice received from Mills is screened continuously through DSM & Vibro Screens. The milling is controlled from centralized DCS.

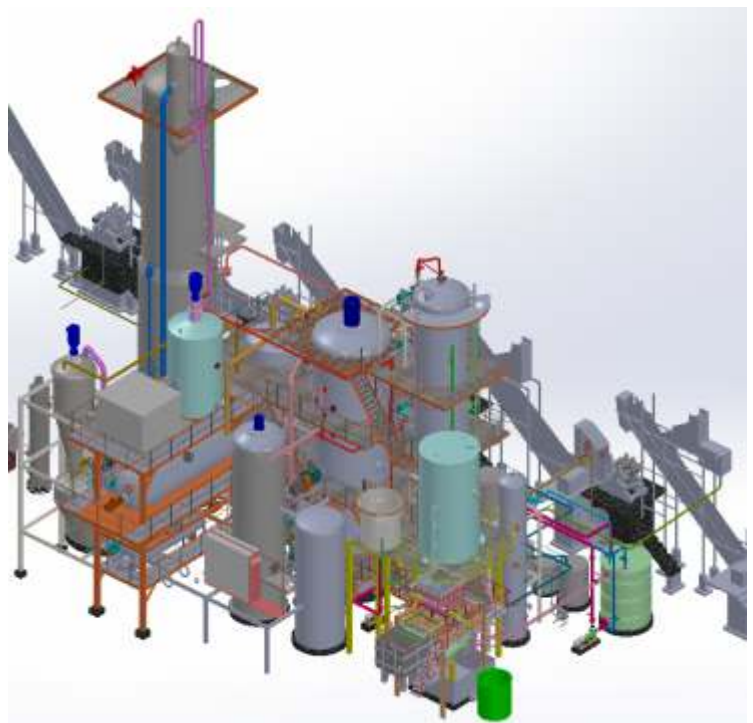


## JUICE CLARIFICATION

Main clarification process involves modern clarification with primary heating followed by defecation and two stages final heating to achieve conducive temperature for achieving best clear juice in the clarifier. The entire system is automated and controlled from DCS.

The novel process for the clarification of cane juice has the following significant advantages:

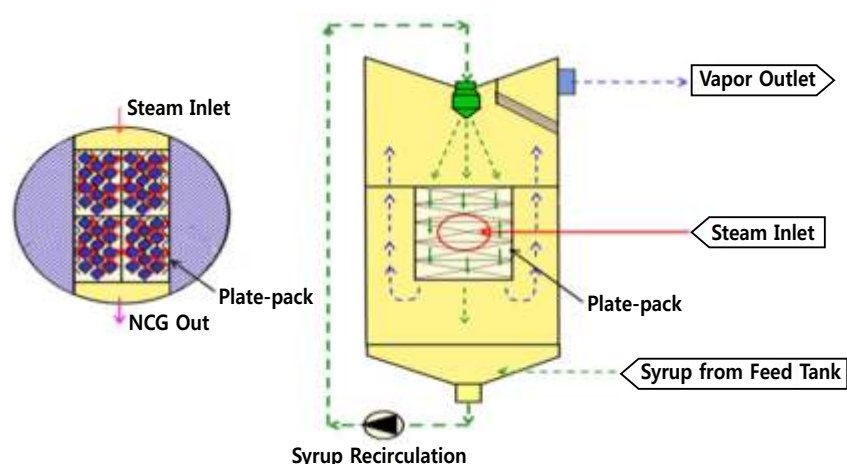
- Continuous process
- Minimum color inclusion
- Minimum processing time
- Lower sucrose inversion loss
- Energy saving
- Reduction in the cost of Jaggery production
- Standardization of product



## EVAPORATION

The clear juice received after clarification is taken into Plate Evaporator which works on very low steam temperature & pressure difference. The juice entering in the system of 15-16 Brix (solid %) is converted into syrup of 70-72 Brix. Water vapour produced for evaporation of juice by most innovative Spray Electrical Dehydrator (MVR-Mechanical Vapour Recompression) system.

The vapour generated from juice in Plate Evaporator is fed to Spray Electrical Dehydrator system which converted the vapours into higher temperature and pressure through compression.



## CONCENTRATION

The sugar syrup received after Spray Electrical Dehydrator is taken in series of syrup concentrator, which further concentrate the sugar syrup and converted it into semi-solids Jaggery under required temperature by using MVR technology.

## DRYING

The semi-solid Jaggery of 88-90 Brix (% solid) is dried up to 94-95 Brix by using Jaggery Pugmill and Jaggery Cooling Trays. The whole equipment used for Jaggery cooling and drying, applied heating from outer surface followed by inside cooling in atmosphere remove the moisture up to normal level uniformly, which is accumulated between the solid particles.

## FINAL PRODUCT HANDLING AND PACKAGING

The concentrated semi-solid mass is poured into moulds for making solid Jaggery. After sometimes the Jaggery is ready in desired shapes and Jaggery moulds removed from frame and packed into sealed proof packing to avoid moisture entrapped. This solid Jaggery after cooling, weighed and bagged in 5/10/20/50 Kg bags/cartoons/boxes in continuous mode. These bags/cartoons/boxes are stored into godown in safe position.

## AUTOMATION & PLANT OPERATION THROUGH CONTROLLED DCS

The Jaggery Plant after feeding the cane into cane carrier is run through state of the art automation, specially designed for Jaggery plant after a long experimentations and fine-tuned operation with a live project.



The process material is introduced right from raw juice stage to Jaggery stage, making it a product of highest quality and free of contamination by external environment.

## SALIENT FEATURES OF MODERN JAGGERY (GUR) PLANT

- Boiler free unit.
- Zero emissions due to Boiler free process.
- Zero water intake.
- 100% bagasse saving.
- Standard clarification process.
- Evaporation by MVR technology.
- High yield Jaggery production 14-16% recovery.
- Energy efficient modernized and cost effective Jaggery plant.
- Low capital expenditure and highly economical in recurring operational cost.
- Compact, plug & play type.



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