

## FEATURES OF MODERN JAGGERY UNIT

- Boilerless/Furnanceless jaggery unit
- Energy efficient and modernized unit
- Zero emissions due to boilerless process
- Zero intake water and zero water pollution
- Generation of good quality water for Irrigation industry without any treatment
- 100% bagasse saving
- Modern evaporation & concentration by compression technology
- Automated Four Milling Tandem system
- High yield (15-17%) against conventional (11-12%)
- High quality hygienic jaggery production
- Organically produced jaggery without any use of chemical
- High ROI & minimal operational cost
- Compact, portable, plug and play type
- Offers scope for multiple revenue centres

## OUR JAGGERY PROJECTS



**EcoTech Agro Mill, Assam**  
(750 TCD)



**SEDL Unit -5, Bidar, KA.**  
(500 TCD)



**Hans Heritage Plant, U.P.**  
(250 TCD)



**Mornisa Bio-Organics, MH.**  
(250 TCD)



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Dedicated for  
**Sustainable  
Environment  
Development**

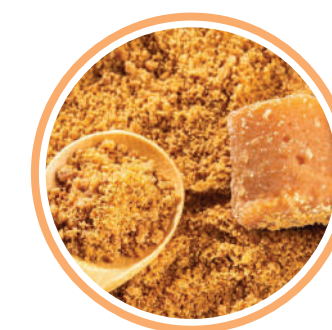


## Modern Jaggery Production Technology

**"Boiler Free Unit (No Fuel Burning)  
with 100% Bagasse Saving"**



**Solid Jaggery**



**Jaggery Powder**



## PREAMBLE

Sugarcane is a prominent crop of India which is mainly utilized for making sugar and jaggery. For sustainability of the jaggery unit, the jaggery production technique needs a radical change in order to increase yield/recovery and fuel saving to sustain in the future.

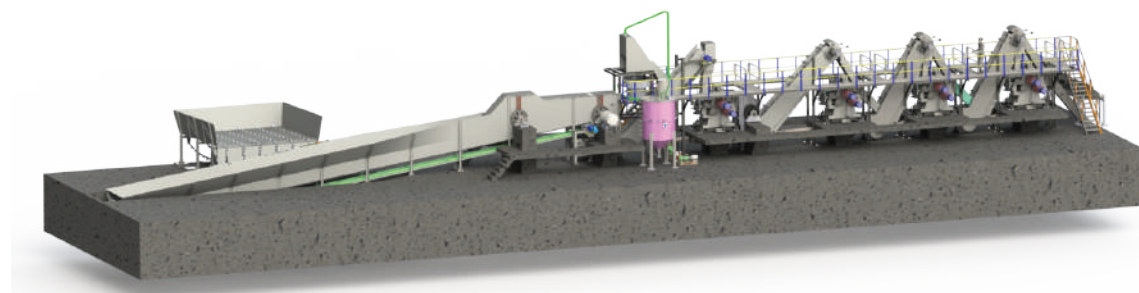
Traditional jaggery production process involves open pan boiling consuming very high heat energy, losing major portion of sugar in bagasse and end up with no bagasse saving and polluting the environment with smoke by burning the bagasse to heat the open pans.

Spray Engineering Devices Limited (SED) has developed a Low Temperature Evaporator (LTE®) based on Mechanical Vapour Compression (MVC) technology for jaggery production with minimum electric energy consumption in a closed cycle without Boiler, by adopting indigenously established modern manufacturing process with energy efficient equipment, innovative system for extraction, clarification, evaporation and concentration techniques, which increases jaggery yield/recovery and ensure 100% fuel saving.

The commercial availability and acceptability of boiler-free jaggery production technology becomes need of the hour for a sustainable technological development with assured profitability for jaggery production Units.

## JUICE EXTRACTION

Extraction of juice is done in a complete mechanical way under a high degree of energy efficient juice extraction system, which consists of cane conveying followed by a novel way of cane preparation having a cane cutter followed by three roller mill crusher & second cutter to complete the preparation. Followed by three mill tandem and each mill having three rollers with TUFR and hydraulic power pack system. The milling tandem is equipped with bath imbibition for extraction of complete sugar from bagasse. The juice received from mills is screened through continuous DSM & Vibro Screens. The mill ensures 98% plus extraction and bagasse moisture at 45-46%.



## JUICE CLARIFICATION

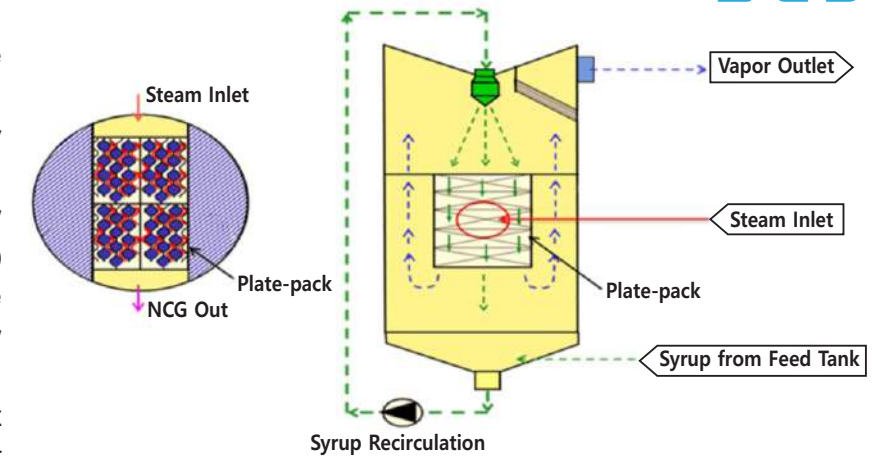
Clarification process involves modern clarification technique with primary heating by Heat Recovery Plate Heat Exchanger followed by defecation and final heating through Direct Contact Heater to achieve correct temperature for achieving better clear juice in the clarifier controlled from DCS.

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

- Continuous process
- Minimum processing time
- Energy saving
- Minimum color occlusion
- Lower sucrose inversion loss
- Reduction in the cost of jaggery production

## EVAPORATION

Evaporation is done by the state of the art Low Temperature Evaporation Technology which is indigenously developed by SED for juice evaporation based on MVR technology. This Low Temperature Evaporator (LTE®) operates at very low steam temperature & pressure differences. The low temperature water vapour is generated during juice evaporation by most innovative Low Temperature Evaporator (LTE®) which is again compressed by MVR to raise temperature and recycled back to the evaporator for further juice evaporation and concentration. The juice entering in the system at very low brix (solid %) is converted into syrup of very high brix.



## CONCENTRATION

The syrup received after Low Temperature Evaporator (LTE®) is taken in syrup concentrator, which is also of plate type to further concentrate the syrup and convert it into semi-solids jaggery under required temperature by using MVR based technology.

## DRYING

The semi-solid jaggery of 88-90 Brix (% solid) is dried up to 94-95 Brix by using jaggery pugmill under controlled vacuum through DCS and natural cooled air in the molds. The whole jaggery-making process remains fully automated, untouched by humans from juice extraction to liquid jaggery discharge to pugmill.

## FINAL PRODUCT HANDLING AND PACKAGING

The concentrated semi-solid mass is poured into molds for making solid jaggery. After 40-45 minutes to remove the moisture up to normal level uniformly, which are accumulated between the solid particles. 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 5/10/20Kg bags/cartons/ boxes.