



Is it possible ?

To increase ethanol production from Syrup with round-the-year operations

Yes it is !

With BIOSYRUP®

BIOSYRUP®

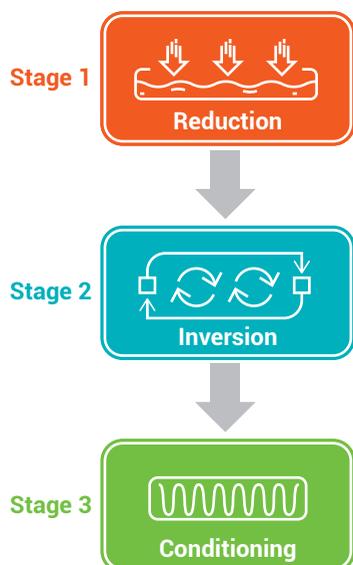
A Sustainable Feedstock for year-round Ethanol Production

The Indian government has advised sugar mills to divert excess sugarcane or sugar capacity to produce fuel-grade ethanol. The move comes in the wake of surplus production and excess availability of sugar, which puts price margins under stress for sugar mills. The remunerative pricing of fuel ethanol thus helps in the revival and profitability of sugar mills which can benefit from using multi feedstock such as excess sugarcane juice/syrup to produce ethanol.

Praj Industries presents the revolutionary technology to process sugarcane juice into a new sustainable feedstock BIOSYRUP® for round the year ethanol production. Praj's time-tested innovative patented technology - ECO-INVERT™ processes sugarcane juice into conditioned BIOSYRUP® which can be stored for up to 12 months.

Sugarcane juice is a perishable and seasonal feedstock that cannot be stored for more than 24 hours. By diverting excess sugar to BIOSYRUP® sugar mills can produce ethanol beyond the sugar season that will help increase annual ethanol production resulting in revenue maximization.

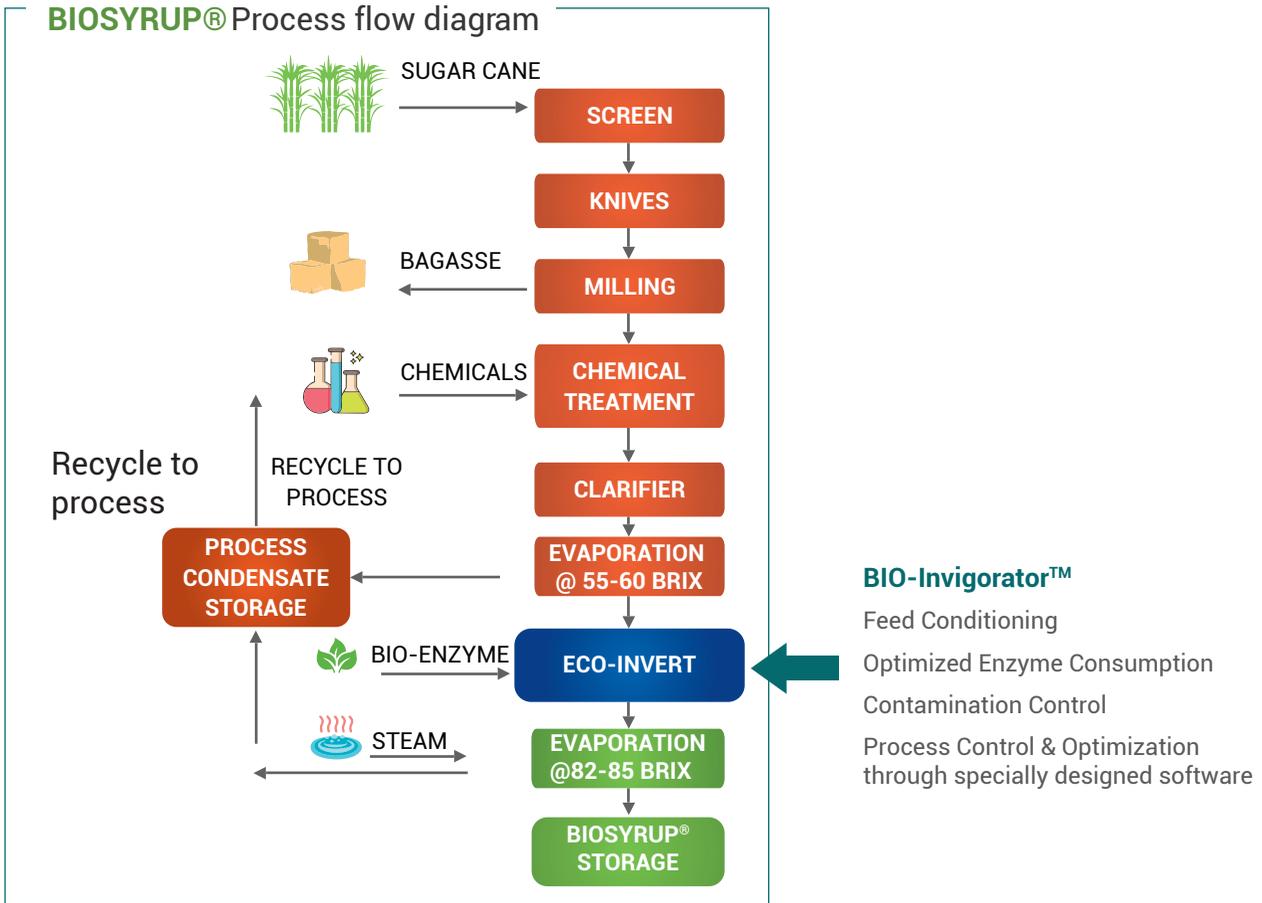
BIOSYRUP® Generation Process



Feedstock State	Feedstock Concentration	Shelf Life	Contamination
Cane syrup	55-60 Brix	24-48 hours	High

Feedstock State	Feedstock Concentration	Shelf Life	Contamination
Cane Syrup	55-60 brix	24-48 hours	Medium

Feedstock State	Feedstock Concentration	Shelf Life	Contamination
Conditioned BIOSYRUP®	80-85 Brix	10-12 months	Low



Maximizing Value Through Praj's BIOSYRUP® technology to convert cane syrup to ethanol

Maximizing Value Through Advanced Proven Technologies

Ethanol Doctor

Praj Matrix (R&D)

Diagnosis & Research Center

- Feedstock diagnosis
- Process optimization
- Intense study of contamination

Technology

Health Monitoring and control

- Correct Technology (SHIFT)
- Operation in controlled condition
- Trouble shooting
- Training

Performance Enhancer

Health Booster

- Formulate Health Booster/Additive to suite client feedstock and operating conditions
- Hygienic and healthy operation

Advantages of BIOSYRUP®



Round the year operations for sugar mills with distilleries resulting in maximizing production upto 50% with minimum investment



Ensuring flexible operations by providing a balance between sugar and Ethanol production



Additional revenue source for sugar mills without distilleries



Higher Production Yields with low effluent generation & lowest operations cost



Effective feedstock for standalone distilleries



Easy storage of concentrated sugar cane juice/syrup for year-round operation



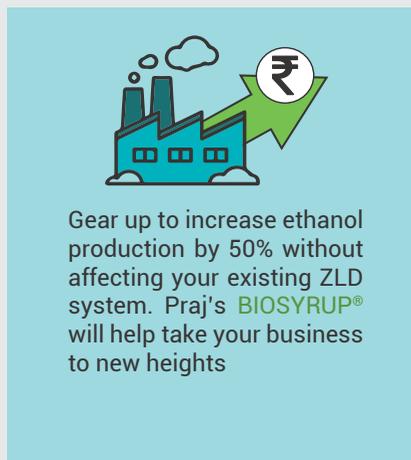
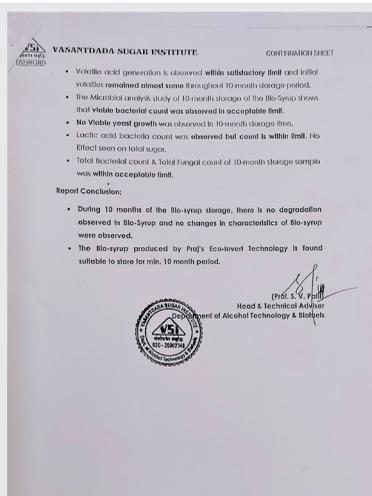
Assured supply of ethanol to OMC's during the off-season



Zero bacterial contamination for reliable operation

Quality Assurance & Accreditation

The new sustainable feedstock BIOSYRUP® produced using the innovative & patented technology of ECO-INVERT™ by our state-of the art R&D department has been validated by one of the premier sugar research institutes Vasantdada Sugar Institute (VSI) and have shown results in terms of no sugar loss with no contamination.



Global Launch of BIOSYRUP™ - A New Sustainable Feedstock



At M/s Jaywant Sugars Ltd., Maharashtra, India | Date : 3rd Dec 2021



Prof. Narendra Mohan Agrawal
Director, National Sugar
institute (NSI)

BIOSYRUP® - a sustainable feedstock has been developed by Praj Industries and had conducted the trials at Jaywant Sugars Ltd. I have observed these trails and have gone through the quality of the BIOSYRUP® produced along with the Ethanol extracted. The patented technology is very promising, and

I am very confident that this technology is going to be a game-changer. While we are trying to boost the production of Ethanol in our nation and there are very few ways with which we can enhance its production.

BIOSYRUP® feedstock developed can help us achieve the target of Ethanol production. I am sure with Praj's innovative technology we would be able to produce more ethanol in times to come. I wish Praj all the success in all their endeavours in the future.



Mr. Shekhar Gaikwad,
IAS, Sugar Commissioner

Currently India has a surplus sugar production of 6 MMT which blocks the liquidity of sugar mills for 18 to 24 months. Diverting sugar production to ethanol is the only sustainable way forward for sugar mills in the long term.

I congratulate Team Praj for achieving such a great milestone which I am sure will become game changer not only in domestic but also in global sugar sector at large.



Dr. S V Patil,
Director Vasantdada
Sugar Institute

BIOSYRUP® technology developed by Praj is one of the most important and innovative technology. It will provide opportunity to preserve the sugar cane juice for longer duration in the form of syrup and use it for ethanol production during the off-season. With this technology most of the sugar mills will become self-sufficient. The other

advantages of using BIOSYRUP® includes the reduction of Carbon emissions, substantially restrict import of crude oil and lower effluents.

We were associated since the inception with Praj for this path-breaking endeavor. BIOSYRUP® developed can be stored for around 12 months without any of loss of sugar or contamination. We have tested, verified, and certified this technology.



Dr. Suresh Bhosale
Chairman, Jaywant Sugars

Praj Industries, has developed a new technology wherein now we can store sugar cane juice in the form of syrup which can be stored for around 12 months. During the off-season this BIOSYRUP® can use for ethanol

production. This technology will allow us to continue our production round the year beyond sugar season. It is going to give us good returns and make us more flexible. I congratulate Praj & their R&D team for making this possible and surely this technology will be a real game changer in the future.



Mr. Ravi Gupta, Chairman
Ethanol Committee, All India
Sugar Traders Association

BIOSYRUP® is a much-awaited feedstock for the sugar industry. This technology pioneered in India could be become a biggest contributor to global green environment. This could be a game

changer for Indian sugar sector as Indian sugar mills can make sugar syrup during the crushing season, store and distil syrup in the off season to make ethanol.

Smaller sugar mills will also benefit from this technology, as this will help them maximize revenue by diverting excess sugar production to BIOSYRUP®.

Ethanol is the game changer both for the Nation as well as the Sugar sector. Currently sugar mills attached distilleries are only benefited by GOI's National Biofuels policy 2018 (NBP).

Storability of Juice/ Syrup, which is a formidable challenge, has been adequately addressed by Praj Industries with launch of BIOSYRUP®, a sustainable feedstock for ethanol production beyond sugar season. As BIOSYRUP® can be traded; small sugar mills without distillery can be benefitted from this. They can trade BIOSYRUP® with standalone distilleries and avail benefits of NBP.



Mr. Sanjay Khatal,
MD, Maharashtra State Cooperative
Sugar Factories Federation, Ltd

1000++ references in 100+ countries across all 5 continents! and still counting...



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