



Key to Successful

Cane Juice Fermentation

Effycane is a specially designed Biotechnology based formulation for improved sugarcane juice / syrup alcohol fermentation.

Praj's BioProducts Division specializes in development of innovative formulations that add 'Economic Value' to Biochemical processes. The expertise comes from

- Vast experience of design and operation of Continuous, Fed-batch and Batch type fermentation processes
- Comprehensive knowledge of feed-stocks composition and its effect on fermentation and yeast

effycane
Fermentation Performance Enhancer

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Economic Benefit of Cane Juice Fermentation

Praj has global experience in cane juice based ethanol plant design and process operation. Cane Juice, being a highly perishable feedstock, is vulnerable to contamination. While it is rich in sugar, it is devoid of major nutrition required for yeast growth.

Cane Juice based alcohol fermentation requires extreme care due to:

- Perishable nature of juice
- Compositional variations based on cane variety, agronomy and handling procedures
- Lack of nutrients in feedstock for yeast growth and performance
- Severe problems of contamination

Effycane is a special product which enables high yield and stable cane juice fermentation process.

The product is a combination of specific Biochemicals and enzymes. The product is formulated after careful study of the parameters and requirements of process.

- Eliminates Contamination
- Generates excess fermentable sugar
- Provides yeast micro-nutrition



Advantages of Effycane

- Improves yeast metabolic rate
- Reduction in volatile acids in mash and by-product formation
- Increase in efficiency and alcohol yield by 5 to 15 liters / MT of cane juice depending on sugar content
- Increased alcohol concentration in mash by about 0.3 to 0.6 %
- High rate of Yeast Growth & Metabolism
- Low Residual sugar loss
- Highly Improved Neutral Spirit quality
- Reductions in the quantity of Spent wash due to 70 % recycle (If syrup is used as feedstock)
- Reduction in the fermentation hold-up time due to high yeast metabolic rate

Thus Effycane is a very effective and proven product formulation which improves the juice fermentation process & yields. Effycane is increasingly used in distilleries in South Central America & Asia.

Effycane Specifications :

Appearance : Free flowing power which readily goes in suspension with in water or mash

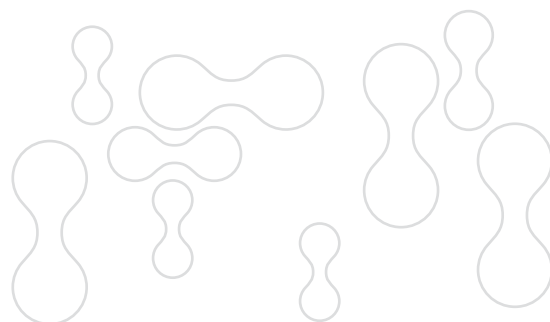
Dosage : Typically between 65 to 70 gram / kiloliter of distillery capacity (Total spirit production) or 5 ppm on wash volume basis

Packing : Easy to use laminated poly-pouches of custom-made sizes for your distillery plants

Shelf Life : Effycane can be stored at below 25°C for up to one year without loss of activity



Praj Industries Limited,
Praj Tower, 274 & 275/2,
Bhumkar Chowk-Hinjewadi Road,
Hinjewadi, Pune-411057. INDIA
info@praj.net | www.praj.net





Solution for High Yield Cassava Fermentation

Effycasv is a specially designed Biotechnology based formulation for improving the performance in Cassava based alcohol fermentation.

Praj's BioProducts Division specializes in the development of Innovative formulations that add Economic Value to Biochemical processes. Cassava is a prominent feedstock for alcohol fermentation in South Asia and Africa. PRAJ has expertise in the processing of both wet roots and dry chips of cassava for alcohol.

Cassava being a soil borne crop poses challenges of

- Low Hygiene & Soil borne contaminations
- High viscosities and large wastewater volumes
- Low alcohol yields
- Lacks nutrients (Storage tuber)

Also cassava processing involves enzymatic conversion of starch to glucose and then formation of alcohol by yeast. Effycasv is the unique product that gives high yielding cassava fermentation process. Effycasv comprises of specific enzymes, micro-elements and Biochemicals. The product has been designed after careful study of the parameters and requirements of process.

effycasv
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Key Actions of Effycasv in Fermentation

- High and extra conversion of the starch
- Prevents proliferation of soil borne bacteria
- Providing nutrients for yeast growth
- Balances enzymatic conversion of starch and formation of Alcohol

Advantages of Effycasv

- Increase in efficiency and alcohol yield by 5 to 10 liters / MT of Cassava dry chips or 3 to 4 Liters / MT of fresh roots
 - Increased alcohol concentration in mash by about 0.5 to 1 %
 - High rate of Yeast Growth & Metabolism.
 - Reduces mash viscosity and minimizes unconverted starch loss
 - Prevention of bacterial contamination & Reduction in the mash volatile acidity
 - Low By-products in Mash
 - Highly Improved Neutral Spirit quality
 - Reduction in the Spent wash quantities
 - Allows Spent wash recycle in fermentation; (upto 40%)
 - Reduction in the fermentation hold up time due to quick reaction.
- Thus Effycasv is a very effective and proven product formulation for cassava processing alcohol yields. Effycasv is used in more than a 10 distilleries in Asia Pacific and Africa.

Introducing Effycasv to your Distillery

On request from the Clients; Praj's Product Application Specialists visit the distillery. They undertake the technical audit of fermentation operation. This is followed by presentation of findings to the clients. For Effycasv application; Clients can have a demonstration run which is on offer from PRAJ. During the demonstration, plant is operated under supervision of the Praj experts with addition of Effycasv along with control for comparison. Upon satisfactory performance of Demo run; clients can enter into contract for regular supply of Effycasv for their distilleries. The supply contracts are six months to one year and are backed up by periodic visits and audits by Praj fermentation experts. Praj has well established global channel networks for supply of Effycasv. In addition, Praj also provides periodic analysis of feedstocks and spirits samples along with recommendations. The operating staff of Clients can also avail training programs and seminars arranged once a year. These are very good refresher courses on Distillery technology advancements.

Effycasv Specifications:

Appearance: It is a free flowing powder which readily goes in suspension with in water or mash

Dosage: Typically between 65 to 70 Gram / Kiloliter of distillery capacity (Total spirit production)

Packing: Easy to use laminated poly-pouches of custom-made sizes for your distillery plants

Shelf Life: Effycasv should be stored below 25° C up to one year without loss of activity



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