

ONE-STOP-SHOP

ALCOHOL TECHNOLOGY,
PLANT & EQUIPMENT.



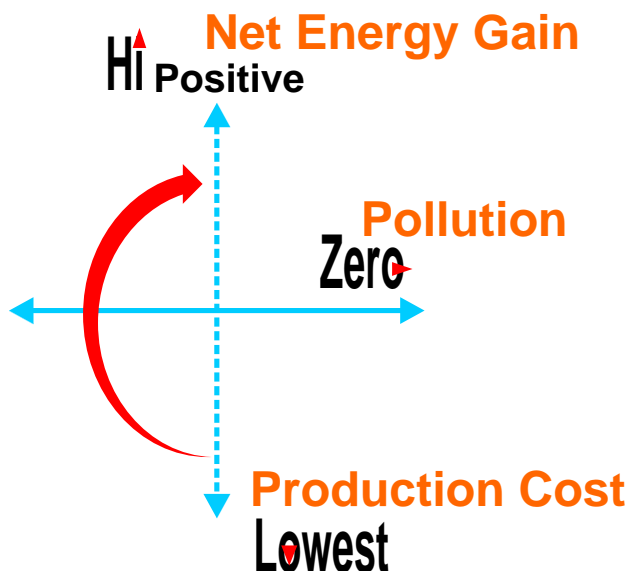


ONE-STOP-SHOP

For Anything & Everything in Alcohol Technology.



From concept to commissioning...
 from feedstock preparation to wastewater treatment...
 With over 300 references world-wide...
 constantly improvising and upgrading...
 Introducing high-yielding processes, energy-saving technologies and working towards achieving better quality of product...
 For PRAJ this has been the guiding force for all technological development.
 Over the last two decades ethanol production has doubled. Almost twenty billion litres of annual capacity has been added through new plants, expansion and modernization.
 And, PRAJ has played a significant role, not only by way of building new plants, but also by way of bringing in a different perspective on technology in many parts of the world.
 Innovation, customized solutions and an understanding of process dynamics have been the focus of all developmental efforts.
 In our effort to offer SUSTAINABLE FUTURE PERFECT solutions, our partnership with customers and associates has been singularly rewarding.
 Having crossed two decades in the service of ethanol industry, we have reinforced our mission which has been simply put as:



Our solutions 'under-one-roof' include:

Processes/Systems

- ◆ HIFERM Fermentation Systems for cane molasses/juice, beet molasses/juice and grain/tubers.
- ◆ ECOFINE Distillation Systems for fuel, beverage and industrial alcohol with option of Atmospheric, Vacuum/Multipressure
- ◆ ECOMOL Fuel Ethanol Plants based on Molecular Sieve Dehydration Technology.
- ◆ FLUBEX Self Cleaning Evaporators for concentration of spenwash/vinasse.
- ◆ Integrated wastewater treatment plants

Services

- ◆ Feasibility Study
- ◆ Technical Audit
- ◆ Process and Detailed Engineering
- ◆ Manufacture and Supply of equipment
- ◆ Project Management
- ◆ Engineering and Supervision of Civil & Structural
- ◆ Commissioning and Training
- ◆ After sales Support
- ◆ Turnkey Plants



Fermentation Technologies

High yields...lower production cost



HI FERM systems for alcohol production are designed to handle a variety of raw materials like :

- ◆ Sugarcane juice streams (primary, secondary, mixed, syrup, filtrate, etc.)
- ◆ Cane Molasses
- ◆ Beet (Juice / Molasses)
- ◆ Grains (Wheat, Rice, Millet, Sorghum, Corn, Rye, Bajra, etc.)
- ◆ Roots (Tapioca / Cassava / Mandioca) and
- ◆ Sweet Sorghum

Our process engineering team considers many variables while designing the fermentation plant. This results into a rugged plant ensuring reliable and consistent operations.

Highlights of HI FERM technologies:

- ◆ High Fermentation efficiency
- ◆ Low wastewater generation
- ◆ Yeast separation and recycle under gravity, eliminating need for expensive yeast separators
- ◆ Flexibility to operate both, continuous as well as synchronized mode of operations, depending on characteristics of raw material.
- ◆ Rugged operations
- ◆ Provision to tap high purity CO₂





ECOFINE*
DISTILLATION SYSTEMS

Distillation Technologies

Energy Integrated Plants



Classical heat & mass transfer principles are applied to deliver energy integrated systems. We have incorporated highly efficient column internals for ensuring better separation of impurities along with reduced scaling and downtime. What ethanol producers get is a plant optimized for quality, energy and operational ease.

Highlights of Ecofine technologies:

- ◆ Multi-product distillation system to products as per stipulated standards for industrial, potable and fuel alcohol applications
- ◆ Energy conservation through multipressure distillation
- ◆ Maximization of production by using vacuum/multipressure distillation technique.
- ◆ Plant automation based on SCADA/PLC
- ◆ Consistency in product quality.

ECOMOL
Fuel Ethanol Plants

EcoMol Dehydration Plants

Reliable....Consistent

EcoMol Molecular Sieve is state-of-the-art pressure swing adsorption based molecular sieve dehydration plant designed for reliable and fool-proof performance, meeting most stringent quality norms.

Bringing you experience of over 50 plants of varying capacities, in just under four years, PRAJ brings you specific advantages:

- ◆ High Ethanol Dryness
- ◆ Lowest energy consumption
- ◆ Higher dessicant (Molecular Sieve) life





Wastewater Solutions

Zero Wastewater...

Wastewater Solutions

Zero wastewater..

While wastewater treatment systems form tail end of the process, PRAJ's technology offering is concerned with this factor right at the beginning of any distillery project.

Each technology is guided by environmental concerns of individual regions. Hence, a basket of technology is available which forms an integrated part of the entire plant including biomethanation, evaporation, DDGS/DDG, composting etc, and the resultant product can be used as a source of energy or animal feed additive or as bio-fertilizer.

Flubex, a patented self cleaning evaporator can be incorporated for wastewater reduction. The focus is on re-utilization and value addition.



ECOVAP-FB
Flubex Evaporation

ECOVAP-FF
Falling Film Evaporation

ECOMET-XT
Biomethanation System





At PRAJ, innovation has always held center stage in any developmental activity. In continuation of our quest to bring 'value-added technologies' to the ethanol industry, we pursue research and development in Matrix-The Innovation Center.

The Agenda

Matrix has taken up agenda of enhancing process efficiencies and quality of spirit; as also taking up the challenges of bio-fuels from a variety of feed-stocks.

Some of the programmes, which have been undertaken by Matrix include enhancing sugarcane to ethanol economics, energy crops for ethanol production and more. Some of the identified crops include sweet sorghum, tropical sugar beet, grains and cassava/tapioca. Biomass is another futuristic feed-stock identified by Matrix.

OTHER BUSINESS LINES OF PRAJ:

- Malt Spirit Plants
- Turnkey brewery projects
- Bio diesel technology, plant and equipment.

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The Spirit of Dynamism