

DSM – Dedini Sustainable Mill



2010 Sustentability Von Martius Award

2009 Eco Award from American Chamber of Commerce



Innovation and Technology



Dedini Vinasse Concentration & BIOFOM



Dedini Vinasse Concentration

Main characteristics

- Vinasse concentration (2°Brix to 65°Brix) by multiple-effect evaporation (3 to 7), using different heat sources available at the mill.
- Stainless steel equipment.
- Use of exhaust steam, "V1" or "V2" juice vapor.
- Specific steam consumption of 1.6 kg/L hydrous ethanol (without energy integration)
- Water re-circulation: 50-85 L water/L hydrous ethanol.
- Possible integrated operation with Ecoferm, which allows a significant reduction of vinasse production and operation with reduced thermal exchange surface in the evaporation system and lower steam consumption.
- Use of turbulent film evaporation technology with high heat exchange coefficients.
- Operation at high speeds providing heating and evaporation quickly and evenly, minimizing the occurrence of fouling and providing longer operation times.
- Thermal cascading operation.
- Easy cleaning, with integrated CIP facility.
- Automated system.
- Reduced use of water from existing supplies due to the production and reclaim of evaporated water of good quality, which can be used in different stages of the industrial process: imbibition of the juice extraction system, dilution of fermentation yeast, mash preparation (dilution of the liquor), and floor cleaning.
- Possibility of using concentrated vinasse for the production of Organomineral Fertilizer (BIOFOM).
- Reduced vinasse transportation costs.

Dedini Vinasse Concentration Energy Integration with the Distillery

Main Characteristics

- Energy integration using the alcohol vapor from the top of the rectifying Column "B".
- Unit coupled to the distillery.
- Reduced vinasse output (up to 6 times less) without steam consumption.
- Without interference on the distillation system.
- Simple and stable operation.
- Independent cleaning system with no need to stop the distillation process.



Organomineral Biofertilizer – BIOFOM

In addition to the large amount of vinasse produced by the sugar and ethanol plants, other residues are generated, such as ashes and soot from the boilers and filter cake, at a rate of respectively 6 kg/ton of sugarcane and 35 kg/ton of sugarcane.

Based on this, Dedini has developed the **BIOFOM** compost using the wastes from the mills and complemented by chemical fertilizers at a rate that varies according to the elements contained in the residues, the sugarcane crop requirements and different types of soil.



This bio fertilizer, besides being produced from an organic source, reduces the application of mineral fertilizers to the sugarcane crops, decreases the production costs and provides numerous benefits to the soil.

Another irreversible trend in the sugar and ethanol industry has been the reduction of water consumption because it is a noble resource with limited supply.

A water self-sufficient unit: Dedini designs and builds water self-sufficient plants, i.e., units that do not use external water. By adopting measures to minimize water consumption and improve energy recovery, in addition to the use of the vinasse concentration system, a great part of the 70% of water contained in the sugarcane can be reclaimed.

Water-producing unit: Another product that is changing the mills' design is the optimization of the Water Self-Sufficient Unit, allowing the evolution of the mill to the Water-Producing Unit. This technology, in addition to vinasse concentration and BIOFOM production, provides energy and water reclaim throughout the sugar and ethanol production process.

This means 3.6 million liters of water/day in a standard mill (a mill with a capacity to crush 2.2 million tons of cane/season). The excess water produced after the appropriate treatment can be used for irrigation, industrial use, home use, among others.

With all these innovations, technological developments and improvements on the mills' production chain, Dedini consolidates its position on the market as a vanguard company and leader on the market of custom made capital goods. We invite you to visit our facilities where you will notice the attitude of an entire organization in pursuit of excellence in providing what is most competitive, efficient and modern in the business.