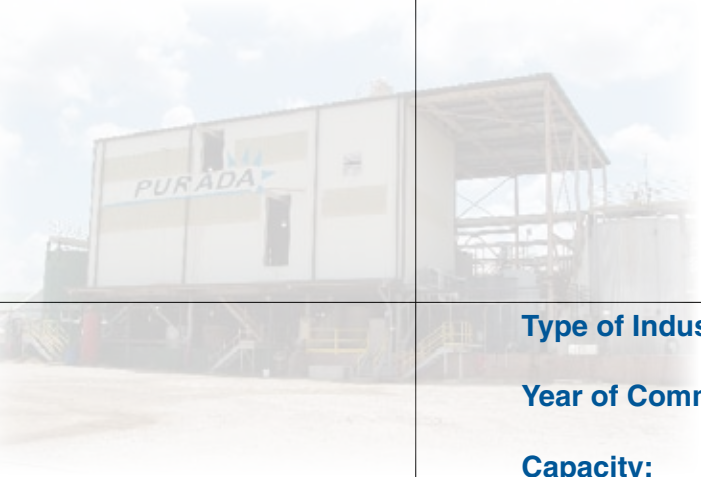
Biodiesel Production Facility
Case Study

Purada Processing's facility in Lakeland, Florida, (a subsidiary of World Energy) pioneered the manufacture of biodiesel and glycerin in the United States in 1997. The plant is designed to produce 18 million gallons per year (mgy) of biodiesel and 10 million pounds per year of 99.7% kosher refined glycerin. The plant was one of the largest facilities for the production of biodiesel during the early stages of development of the biodiesel industry in the United States. It is capable of handling various feed-stocks including waste vegetable oil, poultry fat, and refined vegetable oils such as corn, canola and soybean oils.

The bottom line is process knowledge



Type of Industry:	**Biodiesel and Glycerin Production**
Year of Commission:	**1997**
Capacity:	**Biodiesel - 18 mm gallons per year: Glyercin-10 mm pounds per year**
Raw Material:	**Multi-feedstock**

In early 2005, the plant was experiencing problems with the operation of its methanol recovery distillation system. The distillation column was operating in a manual mode, which resulted in unstable and unpredictable operation with wide fluctuations in the water content of the final methanol product. The inconsistent quality of the methanol product adversely affected the plant's ability to maintain the desired production of biodiesel.

A team of engineers from the Solvent Recovery Division of MEGTEC Systems visited the plant site in late 2005 with a goal of helping to stabilize the operation of the distillation system and to achieve the required water content in the methanol product. A detailed report of findings and recommendations was prepared for Purada. The recommendations included the modification of distillation trays and instrumentation. The addition of automation of overhead temperature, reflux flow, column bottoms level and reboiler heat duty were also recommended. Many of these recommendations were implemented by Purada during the first half of 2006.

Several months later, MEGTEC's engineers visited the plant site again to fine-tune the control system operation and successfully stabilize the operation of the distillation system. The result: the distillation system has been consistently producing methanol with greater than 99.9% purity since these modifications. The stable operation of distillation system resulted in more consistent operation and production of biodiesel at the site. Additionally, since the distillation system can now operate in automatic mode, the operators have more time available to perform other duties.

In order to meet the increasing demand for biodiesel, Purada also commissioned MEGTEC to determine the maximum capacity of the existing evaporation and distillation systems and to make recommendations for achieving increased capacities of 18, 24 and 36 mgy in a stepwise manner. A two-phase approach was determined to be the best way to meet these goals.

In the Phase I study, a computer model for the evaporator and distillation systems was developed utilizing process simulation software. Heat and material balances for the evaporation and distillation systems were generated and verified utilizing operating data collected at the site.

In the Phase II study, the capabilities of the existing evaporation and distillation equipment were reviewed and system modifications were recommended for the site.

Contact MEGTEC to arrange for our experienced engineers to review your plant operations today. Contact us at 1-772-567-1320 or email biodiesel@megtec.com

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