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Semo Milling, a founding partner of MOR, operates a food-grade corn mill in Southeast Missouri (pictured above) which houses MOR's pilot fractionation system.

MOR Technology Introducing Improved Corn Fractionation and CO₂ Oil Extraction for the Ethanol and Biofuels Industry

Corn-based ethanol is currently facing challenges and uncertainties never before seen within the industry. Plants today are looking for ways to improve efficiencies and profitability, address food vs. fuel concerns, and generate revenues through value-added co-products. Many industry experts have recognized fractionation as a unique technology that addresses these issues and transitions plants to corn-based biorefineries. MOR Technology has emerged as a leader and innovator in the field, bringing new and improved technologies in fractionation and corn oil extraction to the ethanol industry at a time when many believe it is desperately needed.

MOR's improved fractionation system
 MOR's design efforts began by utilizing their

corn and grain milling expertise to develop a dry fractionation technology unique to the ethanol industry. Their patent-pending technology has been recognized as a leading fractionation design, offering superior performance characteristics in key areas such as starch loss, protein purity of DDGS and oil purity. MOR's GMP food-grade facilities are designed to turn out premium products, allowing producers to tap into new and more profitable markets for human food and animal feeds.

MOR's fractionation offering has recently been enhanced through a technology partnership with Corn Value Products, LLC (CVP), developer of HydroMilling™, a "modified wet milling" technology. MOR and CVP have created a new,

innovative, patent-pending fractionation system for the ethanol industry. The process combines the product separation advantages of a wet mill process with the lower capital and operating costs typical of a dry mill process. MOR's new combined system is expected to generate less than 2 percent starch loss, a number unrivaled in the industry today. Unlike other systems, MOR's starch loss is not a trade-off for starch purity – the MOR system can produce a high-protein DDG with over 58 percent protein (dm). The system will also produce a high-purity germ product containing above 42 percent oil, while simultaneously capturing and returning valuable starches, sugars, and nutrients to the fermentation process. MOR and CVP, with support from a grant from the Illinois Corn Marketing Board, expect to complete a demonstration unit of their new process at a commercial ethanol plant in Illinois by February of this year.

MOR is currently offering marketing, engineering, and installation services for the combined MOR-Frac™ dry and wet process. Dan Claycamp, President of MOR Technology and industry leader with over 25 years of experience designing, building, and operating commercial food-grade corn mills in the U.S, will oversee the engineering and installation of MOR's systems.

Key Contacts



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Extracting value with supercritical CO₂
 MOR Supercritical, a subsidiary of MOR Technology, has developed a corn oil extraction system that can bring additional value to the ethanol process by producing premium, all-natural, hexane-free germ meal and oil. The company was founded when MOR Technology joined forces with Mr. Rodger

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Marentis and his company, Supercritical Solutions, LLC. Mr. Marentis, one of the world's leading supercritical engineers, has spent his career at the forefront of commercial supercritical CO₂ plant and equipment design. MOR has developed several design "breakthroughs" that result in operating costs below that of solvent or mechanical extraction, minimal product degradation, and the ability to produce refined oils and food-grade meals. A large-scale demonstration unit is expected to be completed by May 2009. The unit will also operate as a commercial tolling facility for the processing of specialty oils and nutraceuticals.

The Industry Innovators series highlights the significant contributions made to the U.S. ethanol industry by members of the American Coalition for Ethanol. To inquire about your company being featured here, contact Lacey Dixon at ldixon@ethanol.org.