ETS LABORATORIES

Why Use Scorpions™ at Your Ethanol Production Facility?

ETS Laboratories is the largest independent alcoholic beverage analysis lab in the US and has been in business for 30 years. We have developed a proprietary diagnostic tool for the detection and enumeration of contaminant yeast and bacteria in ethanol fermentations. The method takes approximately 4 hours start to finish and utilizes a fully licensed Scorpions™-PCR technology. Our Scorpions™ diagnostic technology is available in kit form and is used by the wine industry in Europe, Australia, and the United States.

In discussions and presentations at the recent Fuel Ethanol Workshop in Nashville, it became clear that identification of contaminant organisms in the fermentation is critical. We believe that early detection and genus specific identification will enable more efficient use of antimicrobial technologies to control contamination. Currently used methods to monitor acetic and lactic acids usually do not detect contaminant organisms until populations are in excess of 100,000 cells/mL. Scorpions™ diagnostics routinely detect cells at concentrations less than 100 cells/mL. In the wine industry, intervention at low contaminant microbe levels is more effective than at high levels and reduces intervention cost. In ethanol fermentations, early application of antimicrobial technologies can provide better control and potentially enable reduced applications.

We believe our technology can help determine when it is appropriate to use antimicrobial technologies and which method will be the most effective. This enables preventing contamination, rather than treating a contamination event. The biggest success with the Scorpions™ technology in the wine industry has been as a preemptive screening tool to prevent contamination, instead of a forensic tool to determine what caused the problem.

We have been working closely with two ethanol fermentation facilities to trouble shoot contamination issues, and have demonstrated the diagnostic works with samples taken throughout the corn ethanol fermentation process. Our technology enables analysis of incoming feedstock as well as yeast starter cultures for the presence of low levels of contaminant microbes . At one facility, we were able to determine that although Lactobacillus was present, the primary contaminant microbe was Brettanomyces. We provided rapid feedback to the production staff as they went through the process of determining the most effective methods to control the problem.

Contamination of fuel ethanol fermentations by bacteria and non-Saccharomyces yeast results in a loss of fermentation efficiency, either due to competition for fermentable sugars, or inhibition of the Saccharomyces strain intended to conduct the fermentation. Low levels of contamination can reduce efficiency and increase time in process. The Scorpions™ diagnostic technology can detect these low levels of contamination.

For more information on how you can implement the Scorpions™ technology at your facility, or to inquire about obtaining a complementary analysis, contact us at info@etslabs.com.