

Novel Chemistry Increases Corn Oil Yield and Improves Oil Quality in Tricanter* System

Ashland™ PTV M-5309 corn oil extraction aid

Customer Overview:

- Segment: Biorefining
- Products: Fuel ethanol, DDGS, wet cake, syrup and corn oil
- The corn oil is sold to the biodiesel industry and the other products are sold as animal feed
- Location: Midwest United States

Application Overview:

- System: A Tricanter centrifuge used for corn oil extraction
- Capacity: 50 million gallons of fuel ethanol per year
- Oil processing unit typically treats 65 gpm of syrup
- Syrup solids are typically 33%

Existing Treatment:

- Prior to running the PTV M-5309 corn oil extraction aid, there was no full-time treatment in place.

Problem Summary:

Plant management recognized the value of increased corn oil production as a profit contributor. As a result, the plant contacted Ashland for assistance.

Customer Objectives:

- Increase corn oil yield
- Maintain corn oil quality (solids and moisture)
- Meet feed quality specifications (Profat Tag)
- Ramp production up and down as desired

Ashland Solution:

With a long history in developing chemical innovations for process improvement, Ashland Water Technologies developed a new product that increases corn oil yield and improves corn oil quality in plants producing 50 to 100 million gallons of

fuel ethanol per year. The product, which is marketed as Ashland PTV M-5309 corn oil extraction aid, works under a wide variety of operating conditions and can be used with both Tricanter and Disk-stack centrifuges.

Ashland's corn oil extraction aid contains no APEs or VOCs and is biodegradable, kosher certified and generally recognized as safe (GRAS). Additionally, Ashland has a pending patent application for use of Ashland PTV M-5309 in corn oil extraction.

Working together with plant personnel, Ashland technical and sales specialists reviewed the customer's corn oil production process and recommended the new extraction aid. During the plant audit, feed points were identified and process and regulatory issues were noted. In addition to operations, co-product marketing and quality control were involved to ensure feed quality concerns were addressed. An extended trial with the extraction aid was approved.

During the trial, the feed rate for the extraction aid was adjusted to maximize corn oil production. Daily profit contributions were calculated and confirmed by the plant.

Customer Benefits:

- Corn oil yield was increased by 500,000 gallons per year, which increased profits more than \$500,000 per year
- Corn oil quality (solids and moisture) was improved
- Feed quality specifications (Profat Tag and color) were met
- The PTV M-5309 extraction aid allowed the plant to manage production on an as-needed basis

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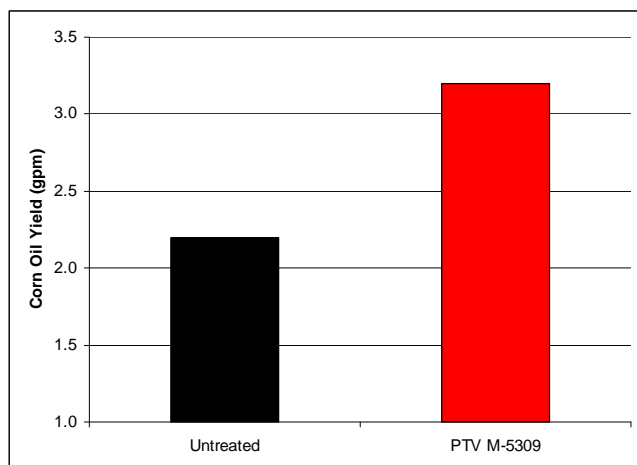
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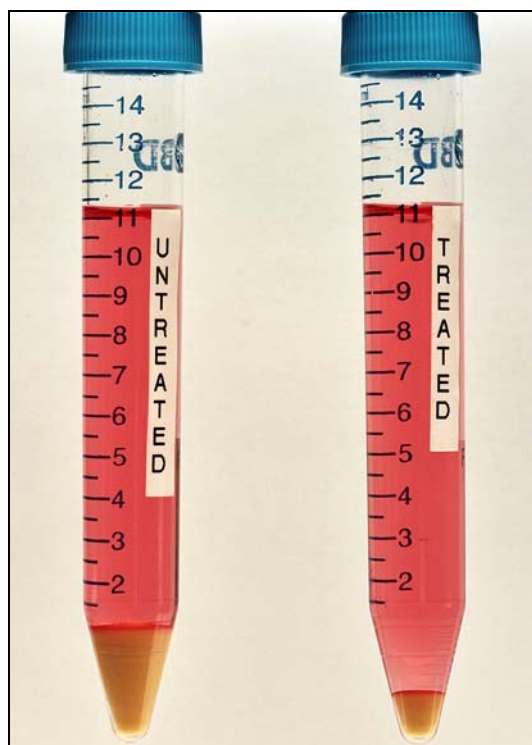
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Conclusion:

The PTV M-5309 corn oil extraction aid was easy to implement and was compliant with all critical regulations. The plant continues to utilize the extraction aid and reap the benefits of increased corn oil production.



PTV M-5309 Corn Oil Extraction Aid Increases Corn Oil Yield by 45.5%.



PTV M-5309 Corn Oil Extraction Aid (Tube on Right) Improves Corn Oil Quality.