Biodiesel Industry Benefits from Special Emulsion Breakers

Problem

In the processing of yellow or brown grease for conversion to biodiesel or for production of industrial lubricants, a critical step depends on the complete recovery of oil and generation of smallest volume of "rag" layer or interface between oil and water.
Since this intermediate layer is intrinsically an emulsion stabilized by biological solids, oil seed skins, etc., the resolution of this phase is a demulsification exercise.

Solution

Several types of waste vegetable oil, animal fat, grease trap waste and used cooking oil were evaluated by ECI. Two demulsifiers were found to yield optimum recoveries at fairly low temperatures. RECOVEROL ECO* 22-4 and ECO* 53BC at 2000-3000 ppm consistently yielded the desired oil recovery and quality, economically and reproducibly.

Results

Case I

A biodiesel plant in the West heats 6000 gallon batches of waste animal and vegetable oils to 150-170°F. Approximately 2.5 gal of ECO 22-4 per 1000 gal of oil is mixed in. After 12 hours settling, the moisture content in the oil is reduced from 3-10% down to ~0.3%, with a very small layer of floating bio-solids. Conversion of the oil to biodiesel is in excess of 95%.

Case II

A reclaimer in the East treats 15,000 gal batches of waste cooking oil by heating to 180°F and mixing in ECO 53BC at 2.5 gal/1000 gal. After 3-5 days, clean bright oil is recovered with a rag layer few percent by volume.
When more time is available, the customer reduces dosage to 1.5-2 gal/1000 gal, and attains comparable recovery.

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