

**Case study:** Midwest, United States

# Distillate stability additive helps refiner upgrade coker light gas oil

## Problem

A Midwestern refinery had a costly problem with their coker light gas oil (CLGO). It was too unstable to blend into their diesel pool and they could not further process the CLGO because of their very limited FCC and hydrotreater capacity. They were often forced to sell it to other refineries at a value much lower than diesel pool value.

Fortunately, the refinery's process and fuel additive supplier, Baker Hughes, was able to provide an economically favorable solution to this issue.

## Solution

Baker Hughes representatives proposed using a distillate stability improver to maximize the amount of CLGO that could be blended into the diesel pool while still meeting fuel specifications. Baker Hughes first screened their comprehensive line of distillate stability improvers in a diesel stream containing the CLGO to identify the additive best suited for use in this blend. TOLAD™ 9022 fuel stability additive was quickly revealed as the product of choice for this specific application.

The team then focused on finding the most economically favorable balance between additive dosage and amount of CLGO that could be added to the diesel pool while still maintaining a required 75% reflectance under the conditions of the 90 minute version of

ASTM D6468, *Standard Test Method for High Temperature Stability of Distillate Fuels*. The application was field trialed by first treating the CLGO with 1,000 ppm of TOLAD 9022 additive upstream of the diesel blender and then adding the treated CLGO to the diesel stream at 5%.

The trial was an immediate success and quickly became a full-time application.

## Results and benefits

This case history is presented for illustrative purposes only as the results may vary between applications. The use of TOLAD 9022 additive to upgrade CLGO to the diesel pool has been in practice at this refinery for several years. The economic value to the customer has been significant. The stability additive costs have been easily recouped with an exceptionally high return on investment of over 500% each year the program has been in place. This case history is presented for illustrative purposes only as the results may vary between applications.

Baker Hughes continues to work with this refiner to optimize this application. Currently, the refinery produces diesel with up to 9% CLGO in the blend at an average additive dosage of 1,300 ppm. Studies are underway to further increase the percentage of CLGO in the diesel pool through the use of additional stability additive(s).

Baker Hughes was able to make a significant contribution to the bottom line at this refinery. Baker Hughes access to best-in-class additives as well as its knowledge of test methods, specifications and best practice application procedures all helped make this program both cost-effective and successful. Moreover, solid relationships between refinery personnel and Baker Hughes account managers enabled the teamwork necessary to resolve this issue. Baker Hughes continuing commitment to providing solutions, not just chemicals, is clearly illustrated here.