Borotec®

Moderate resid Fluid Catalytic Cracking (FCC) catalyst improves unit performance

BASF’s Borotec® catalyst uses novel Boron-Based Technology (BBT) to provide higher conversion and metals tolerance for a moderate resid feedstock delivering a profitability improvement of $0.23/bbl

Introduction

An FCC unit processing a moderate resid feedstock with a concarbon of 1 wt % requires good metals tolerance with increased liquid yields.

Results

Borotec was compared with another supplier’s premium bottoms-upgrading technology. In the commercial trial, Borotec delivered good metals tolerance and improved liquid yields. Compared to the competitor’s catalyst, Borotec enabled the refinery to:

- Improve coke selectivity
- Improve activity retention, at similar vanadium and sodium levels
- Improve bottoms upgrading
- Improve propylene and butylene yields (after catalyst optimization with a light olefins additive)
- Achieve $0.23/bbl unit profitability improvement compared to the competitor’s catalyst

![Figure 1. Borotec showed higher LCO/BOT levels compared with competitor’s catalyst at same conversion](image)

### Post Audit on Borotec at constant coke*

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After**</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion, wt %</td>
<td>80</td>
<td>80.5</td>
<td>+0.5</td>
</tr>
<tr>
<td>LPG, wt %</td>
<td>16.9</td>
<td>17.0</td>
<td>+0.1</td>
</tr>
<tr>
<td>Gasoline, wt %</td>
<td>54.0</td>
<td>54.5</td>
<td>+0.5</td>
</tr>
<tr>
<td>LCO, wt %</td>
<td>14.2</td>
<td>13.9</td>
<td>-0.3</td>
</tr>
<tr>
<td>Slurry, wt %</td>
<td>5.9</td>
<td>5.6</td>
<td>-0.3</td>
</tr>
<tr>
<td>LCO/Slurry, wt/wt</td>
<td>2.40</td>
<td>2.48</td>
<td>+0.08</td>
</tr>
</tbody>
</table>

*Yields normalized for constant operating conditions
**Prior to light olefins additive
About Us

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