

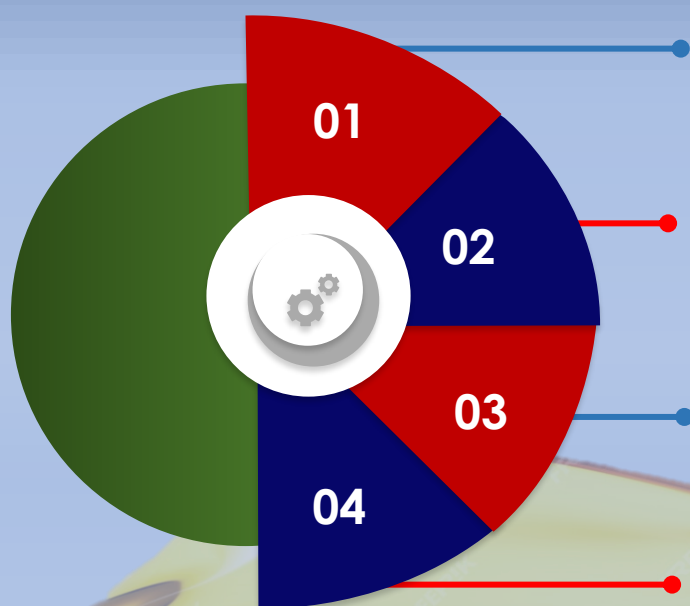


HP BCA

Bottoms Cracking Additive for FCCU

- Bottoms yield from FCC unit has low commercial value due to higher yield of furnace oil and adversely effects overall refinery margins
- HP-BCA is a novel and innovative catalyst technology for reduction of bottoms yield

Key Differentiators of HP-BCA are based on novel 4A's

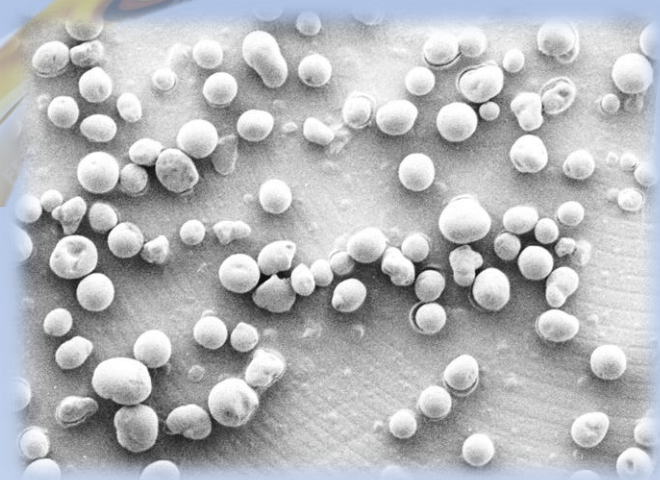


Fine tuned
ACIDITY

Enhanced
ACCESSIBILITY

Arrested
ATTRITION

Enhanced
ACTIVITY





HP BCA

Bottoms Cracking Additive for FCCU

HP BCA: Novel Catalyst formulation developed in-house at HPGRDC exhibiting superior results

Performance of HP-BCA at Visakah Refinery w.r.t base case

Performance of HP-BCA at Mumbai Refinery w.r.t base case

Feed Con
0.8%

Gasoline
0.5%

Bottoms
0.6%

Feed Con
1.5%

LPG
1.5%

Bottoms
0.75%

- Cost effective than imported additive
- Reduced Bottoms yield
- Selective product slate
- Minimized CO2 emissions (FO usage)