

Delayed Coking

Conversion of Residue to Distillates

Globally, crudes are becoming heavier, yielding higher amount of residues and shrinking refinery margins. Delayed Coking is a severe thermal cracking process for converting low value heavier residue to lighter products with rejection of metals and Conradson carbon into coke. The ability of this technology to convert heaviest residue streams provide the much-needed flexibility to refiners to process a wide variety of crude oil and therefore, is the most widely used process all over the world.

IndianOil and Engineers India Ltd. (EIL) have jointly licensed the Delayed Coker technology by synergizing individual technological strengths. IndianOil R&D has the capability to estimate product yields, process conditions and product properties based on its state-of-the-art pilot plant and process simulators. EIL has global experience of process design and engineering for both open-art and licensed units.



Salient Features

- Minimization of shot Coke formation by optimising process parameters
- Design of Coke drum cycle from 16-24 hours
- 'Pit & Pad' combination for Coke handling, minimizing drum structure height
- Automatic top and bottom un-heading valve for operator safety
- Closed blow-down to minimize air pollution, water re-use (Maze system) & hydrocarbon recovery during drum cooling.
- Efficient fired heater design ensuring:
 - ▶ Reduction in ratio of peak flux to average flux in radiant section by ~ 30%
 - ▶ Uniform heat distribution
 - ▶ Lower heat transfer area
 - ▶ Shorter residence time and lower pressure drop
- Processing of Refinery waste sludge in Coker for its disposal

Major Benefits

- Safe, reliable and well-proven technology
- Conversion of low-value residue to distillates with moderate capital investment
- Processing of a wide range of feedstocks - offers flexibility to enhance refinery margin through processing cheaper crudes
- Design of Fuel as well as Anode grade Cokers depending on feed quality

Commercial Experience

Commissioned Units

- Wide operating experience with commercial Delayed Coker units
- Technical support and troubleshooting expertise
- Revamp of Delayed Coker of 0.6 MMTPA in one of the Indian refineries (Coke reduction by ~ 4 wt% with corresponding distillate yield improvement and energy savings in the range of 30-40%)

Upcoming units

- Revamp of 0.5 MMTPA DCU unit by 130% in one of the Indian refineries by 2023-24

