Background

Delayed Coking is a severe thermal cracking process for converting heavier residue to light products with complete rejection of metals and Conradson carbon into coke. Ability of Delayed Cokers to convert even heaviest residues to lighter distillates provides much needed flexibility to the refiners to process wide variety of crude oil. Having demonstrated the Needle coke production at commercial level at two refineries, IndianOil R&D has developed the capability of prediction of product yields, process conditions and product properties for Delayed coking process based on state-of-the-art pilot plant and in-house developed process simulator/calculations.

On the other hand, Engineers India Ltd. (EIL) has already licensed 5 grass root Delayed coker units and carried out one revamp. All these units have been performing as per their design quite successfully. IndianOil R&D and EIL are jointly offering Delayed coker technology through synergizing the individual technological strength.

Salient features

- Minimization of shot coke formation by parametric and feedstock quality adjustment.
- “Pit & Pad” combination for Coke handling minimizing drum structure height.
- Automatic Top and Bottom un-heading Delta valve or Han & Clay for operator safety.
- Closed blow-down to minimize air pollution, water re-use (Maze system) & H/C recovery during drum cooling.
- On line spalling giving two year run length. Offline decoking by mechanical pigging, which is more efficient for non-organic fouling e.g. iron sulfide and hard coke.
- Interlocks for safe operation of chamber switch over valves.
- Double Fired heater configuration ensuring,
  - Ratio of peak flux to avg. flux in radiant section reduction by ~30%
  - Uniform heat distribution
  - Lower heat transfer area
  - Shorter residence time (reduced travel length) and lower pressure drop
- Design of coke drum cycle from 18 to 24 hours
- Refinery waste sludge disposal in drum quenching step.

Advantages

- Processing of wide range feedstocks
- Design of Fuel as well as Anode grade cokers depending of feed quality
Our Back up Strengths

- Proven expertise in design of Fuel as well as Anode grade cokers
- Wide experience with commercial Delayed Coker units processing various feedstocks
- Excellent technical support and troubleshooting expertise
- Commercial / Pilot plant data bank
- State of the pilot plant facility for generation of basic design data with any new combination of feedstocks

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