

# Measuring Level in Delayed Coking Units

## Level Measurement in the Fractionator



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### TowerSENS in coking units

The fractionator is another crucial part of the delayed coking unit. The Berthold radiometric level gauges are used to monitor the bottom liquid level – an important parameter for the efficient control of the complete coking cycle. The measurement is not affected by surface turbulences, sprinkler rain, different product densities or scaling / coking and the use of SIL2 certified detectors satisfies the need for a safe and reliable operation.

### Level Measurement in the Fractionator - Customer Benefit

Efficient control of coker feed

Increased process safety and reliability

Safety prevents from liquid carry-over into the vapor inlets

Ensures minimum liquid head for the coker charge pump

### Characteristics of Berthold Level Measurement in Delayed Coking Units - Fractionator

- Non-contacting, non-intrusive level measurement
- Not affected by surface turbulences, sprinkler rain, different product densities or scaling / coking
- Due to the importance of the measurement a redund
- SIL2 / SIL3 certified option
- Reduced source activity due to highly sensitive scintillation technology

- High repeatability and long-term stability due to automatic stabilization technology based on cosmic radiation
- No re-calibrations required
- Immune against interfering radiation, XIP or RID feature ensure operation during weld inspections

## Level Measurement in Coke Drum Bottoms in a Delayed Coker



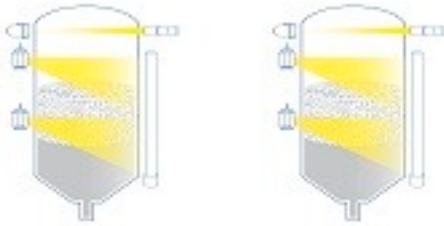
### Coke Drum Refinery

Residues are upgraded in the delayed coking unit. The heated residues are fed to the coke drum where the last volatile components are gathered. Solid coke remains in the drum which slowly fills up. The radiometric level technology from Berthold is ideal for monitoring the coke level due to its non-contacting, non-intrusive nature. Since strong temperature variations through the whole operational cycle of a coke drum are a known issue to the operators, the patented automatic stabilization technology from Berthold based on cosmic radiation has proven to be the most important feature to guarantee a stable and reliable level measurement without the need for re-calibration or auto-zero adjust. Separate level alarms ensure additional process safety.

## Level Measurement in a Delayed Coker - Customer Benefit

- Reliable level control
- Improved utilization of drum capacity
- Efficient use of anti-foam agent
- Increased throughput
- Safe operation

## Characteristics of Berthold Level Measurement in Delayed Coking Units - Coke Drum



### Monitoring coke level

- Non-contacting, non-intrusive level measurement
- Use of 8 m long TowerSENS detectors (covering up to 32 m in cascaded mode)
- Highest sensitivity due to solid scintillators leading to significantly lower source activities
- High repeatability and long-term stability
- No re-calibrations required
- Immune against interfering radiation, [XIP or RID feature](#) ensure operation during weld inspections
- [SIL2 / SIL3](#) certified option

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