
Question 81: What are the potential impacts on FCC LPG and FCC gasoline properties from a) processing coker off-gas into the FCC gas plant and b) processing coker naphtha in the FCC riser?

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Coker products are known to contain more sulfur, H₂S, di-olefins and mercaptans than FCC products. Care should be taken not to overburden the LGP sulfur extraction unit or send an excessive amount of diolefins to the Alky. One of our refineries experienced excessive mercaptan sulfur in the Light Cat Naphtha when a coker light ends stream was routed to the FCC gas plant. The coker stream contained high levels of H₂S but did not contain excessive gasoline boiling range mercaptans when measured by the lab. However, when the coker stream was removed from the FCC Gas Plant, the mercaptan content in the Light Cat Naphtha dropped to normal levels. We believe that the mercaptans found in the Light Cat Naphtha were formed in the FCC Gas Plant via a recombination reaction of H₂S with olefinic naphtha. The remedy was to reroute a portion of the coker light ends stream away from the FCC gas plant. At one location, coker naphtha is sent to the FCC Gas Plant which increases the fouling tendency in the Debutanizer thermal siphon style reboiler

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