
Question 16: A number of refiners are adding a chloride dispersant to address FCC main fractionator overhead system plugging issues. What is your experience with these products and have you had issues with downstream gasoline product quality?

THOMPSON (Chevron)

Processing of increased amounts of imported FCC feed, both gasoline and reduced crude, results in increased chloride salts in the main fractionator, which is usually a result of sea water contamination of transfers. Ammonium chloride salt dispersant is a chemical, which can be used to move or disperse ammonium chloride salts to prevent pluggage of the FCC main fractionator. It is usually injected into the reflux and ultimately is removed through the heavy gasoline and LCO draws.

Usually the dispersant can reduce corrosion by tying up ammonium chloride. Corrosions can still be an issue where the salts accumulate. However, if you have excess water in those locations, the salts can be very corrosive. Also, the dispersant is not very effective in moving salts where there are low velocity or dead zones. Sometimes the salts will accumulate in those areas. One unit experienced massive salt buildup and severe piping corrosion in a low velocity reflux line. The picture shows a reflux line and the salt lay-down. You can get over 100 mpy kind of corrosion under those circumstances.

Chloride Deposits in FCC Overhead System



- Massive chloride lay-down in FCC fractionator overhead system. Such salts can cause well over 100 mpy (over 2.5 mmpy) corrosion rates.

Chevron

FCC Q&A

The next picture was taken at a point where we actually opened up the line. It shows the salt deposits at the bottom. The interesting thing here is the hydrocarbons are actually protecting the salt layer so that the corrosion was not as high as you might have expected because the hydrocarbon tend to keep the water out of the salt deposits.

FCC Overhead – Chloride Salts



- Closer view of salt lay-down. Note the thick hydrocarbon layer on top of the salt. This may prevent water from reaching the salt, otherwise the corrosion might be even more extensive.

Chevron

FCC Q&A

We have not seen product quality issues with using the dispersant, for either gasoline or light cycle oil. However, the units that are using this tend to treat their products downstream because of evidence of chloride salts downstream which result in increased corrosion, but it is unclear whether the dispersant might be an issue. So far, we have not really had a problem with that.

HOWELL (Holly Refining)

Holly is not using this chloride dispersant at either of our facilities. Discussion with our treatment vendor would lead us to believe that in the areas where we are refining, it is not being used by our direct competitors there either.

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