Question 18: Do you have experience with gasoline corrosivity due to breakdown of organic fluorides from alkylate? Is the issue mitigated by increasing the residence time in tankage prior to blending?

Kurt Detrick and **Daryl Dunham** (UOP)

Gasoline corrosivity should not be caused by organic fluorides in the alkylate. Organic fluorides themselves are not corrosive, and organic fluorides will not break down to HF in tankage at ambient temperatures.

However, particles of iron fluoride scale can be present in the alkylate product. The tiny scale particles are created in the acid areas of the unit and some of these particles can eventually work their way down to the bottom of the main fractionator where they leave with the alkylate product. In the bone-dry alkylate stream, these particles are benign, but when they come in contact with water, they can hydrolyze and this can reduce the pH of the water to a point where corrosion of carbon steel can start to occur (about 5.5 – 6.0 pH). There has been corrosion reported in some alkylate tanks due to this phenomenon. Most HF Alkylation units take care of this problem by either managing the pH in the bottom of the alkylate tank or by treating the alkylate before it leaves the unit.

Jim Norton and **Chris Steves** (Norton Engineering)

Corrosion in alkylate tank bottoms has been seen due to the breakdown of organic fluorides, and many refiners have used KOH heels in these tanks to avoid this corrosion. The KOH heel must be periodically sampled and replaced as needed to ensure that it is not all consumed by trace HF.

Tags

Alkylation

Blending

Corrosion

HF Alkylation (HF Alky)

Tankage

Year

2014