## Question 11: Where are your liquid-phase chloride treaters installed for reforming units? What are the advantages of each location?

## **BILL KOSTKA (AXENS NORTH AMERICA)**

Liquid-phase CI treaters are typically used in three locations for reforming units.

Treating the unstabilized reformate stream provides several advantages. The stream is heated upstream of the stabilizer column which ensures that any ammonium chloride is dissociated into HCl and ammonia allowing HCl removal and eliminating the possibility of ammonium chloride issues in the stabilizer. A treater at this location eliminates the need for separate treaters on the stabilizer offgas, LPG and stabilized reformate streams. If done properly, one large treater can replace three smaller treaters. Locating the treater between exchangers in the stabilizer's feed-exchanger train affords conditions that guarantee liquid phase operation instead of less desirable two-phase operation obtained at higher temperature. Liquid phase flow is better for chloride adsorption.

If the unstabilized reformate treater cannot be properly designed to efficiently remove all CI species, then treatment of the stabilizer's individual effluent streams becomes necessary, especially where problems have been encountered or, in the case of new units, where the licensor's experience suggests that a problem is likely.

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