
Question 14: What do you consider when evaluating options for sulfuric acid regeneration? Comment on owned and operated facilities, onsite third-party, and offsite third-party operations.

BURTON (Motiva Enterprises LLC)

I think the first consideration is: Do you have access to a reliable supplier? Your alky plan needs a supplier, either onsite or a third party, who meets your requirements in terms of on-time delivery and quality. Refineries do not want to have a slowdown or shutdown due to delivery issues of acid to the alky plant. So first and foremost, consideration must be maintaining a reliable acid supply by a third-party supplier or an onsite regeneration plant.

Sulfuric acid costs are among the top three or four non-energy, variable costs for a refinery. An onsite regeneration plant may be viewed as a way to reduce those costs. The last time we looked at this option internally, our conclusion was that operating an onsite acid regeneration plant was not one of our core businesses. As such, we were concerned that these facilities would not get the number of Operations and Maintenance support to ensure reliable operation. Ultimately, we concluded that for our refineries, installation of onsite acid regeneration facilities was not cost-effective relative to a third-party supplier.

KEADY (Technip USA)

Most of the refineries that I have worked on have been fairly isolated, so we have tended to go toward a unit there in the refinery. The customers are interested in acid strength and the spin-down rate. Generally, for an owned-and-operated facility, the acid strength is higher. The acid strength from an owned unit is around 99.2, as produced using technology by DuPont MECS®. A lower throughput results from a higher acid content; therefore, your equipment sizes are reduced. Downstream time is high due to online cleaning. In general, regenerated sulfuric acid purchased on the open market is around 98%.

UNIDENTIFIED (DuPont Sustainable Solutions)

Each of the three options referenced above has different advantages that would factor into an owner's ultimate processing decision for regenerating spent sulfuric acid from the alkylation process. The factors that are typically considered are the following:

1. Available capital versus other refinery projects: Is there capital available? Are there more profitable projects? Would third parties be willing to invest capital?

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2. Operating and maintenance costs provide more cost variability than owners paying a third party a fixed price per ton.
 3. Onsite owner processing of spent acid would provide the lowest cost per ton versus other processing options.
 4. Owner-operated facilities would have direct control of supporting on other site operations.
 5. Evaluating the changing freight costs and freight regulations due to the hazardous nature of the spent and fresh sulfuric acid.
 6. Operation and Maintenance personnel requirements and Human Resources responsibilities will differ between the options.

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