
Question 26: What are options for disposition of the caustic regeneration outgas stream associated with an LPG or gasoline caustic treater? What measures have you successfully used to prevent fouling, pluggage, and corrosion in this line?

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The caustic treating off gas stream is primarily air that has been partially depleted of oxygen during the oxidation of mercaptides to disulfides in the caustic regeneration step. The off gas also contains entrained mercaptide and disulfide species as well as entrained water and caustic. The stream will also carry over LPG or gasoline that is entrained in the caustic and is then stripped out during the oxidation step.

Many refiners dilute the off gas with fuel gas to ensure that even with residual oxygen it stays above the upper flammability limit. The off gas may then pass through a KO drum to remove liquid carry over and is normally incinerated in some sort of thermal oxidizer (such as at the sulfur recovery unit) or combusted as a waste gas stream in a fired heater or boiler. The make up the stream containing residual oxygen mixed with residual hydrocarbons make it difficult to send the stream anywhere other than for full combustion oxidation.

The line is subject to plugging but can usually be cleared by steaming. It should be set up for easy steam out. Corrosion is also an issue can be minimized by eliminating any dead legs that could allow caustic material to accumulate.

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