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Investigation of the benzole prefractionator distillation column using gamma ray scanning technique

Gamma column scanning technique was used to scan and investigate the integrity of the 26m tall benzole prefractionator column consisting of 60 single pass trays and a diameter of 0.8m. A 100mCi Cobalt 60 gamma radiation source and NaI scintillation detector was used to scan the distillation column. The obtained results were presented in a graphical form of column elevation against intensity. The results showed that all the trays were in their correct position but at tray number 32 the profile showed that it could be partially damaged and also just below tray 41 the scan revealed that there is loss of thickness on the column wall. The obtained density profile showed some small variations from the expected density profile and this was attributed by external features on the distillation column.

KEYWORDS

gamma ray scanning, density profile, Cobalt 60 gamma radiation source

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

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