

Catalyst Removal ITP-Revised

The catalyst removal ITP option will require an additional process step to the current ITP flowsheet for removal of both solid catalyst (entrained sludge) and soluble catalyst (metal ions in solution). A unit operation for filtering the sludge from the salt feed and a column for contacting the filtered salt solution with ferrous sulfide to remove any soluble catalyst will be used to prepare the salt solution for storage prior to processing in ITP. The removal of the catalyst from the ITP feed should reduce the benzene generation rate in the ITP process to approximately the radiolytic decomposition rate of TPB. The processing steps subsequent to this treatment will be the same as the existing ITP configuration.

Variations:

- 1) Use a flocculant to capture the catalyst particles
- 2) Use a flow through electrochemical cell to separate the catalyst
- 3) Use "mossy zinc" to capture the catalyst particles.

Merits:

- 1) Minimal impact on current DWPF process and waste form

