Reductive homogeneous electron mediator for ambient temperature degradation of gaseous chlorobenzene

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Aromatic halides removal by oxidation leads to polymerization instead of its removal. In the present work, mediated electrocatalytic reduction (MER) followed by mediated electrochemical oxidation (MEO) process was developed for the removal of chlorobenzene. First, two electron mediators Co(III) and Ni(I) at each anodic and cathodic half-cells, respectively, were generated using divided paired electrolytic process. Then, the chlorobenzene gas was treated at cathodic electroscrubber for its dechlorination and sequentially treated at anodic electroscrubber for benzene degradation. The removal efficiency of chlorobenzene was monitored by online FTIR gas analyser and discussed.

Key words: Chlorobenzene, MEO, MER, electroscrubber.