

Room temperature removal of N<sub>2</sub>O gas sustainably using electrogenerated Ni(I) electron mediator at electroscrubber by MER process

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Room temperature removal of N<sub>2</sub>O is in underway. This is the first report deals room temperature removal of N<sub>2</sub>O using mediated electrochemical reduction at electro-scrubbing process. First, [Ni(I)(CN)<sub>4</sub>]<sup>3-</sup> was generated by electrochemical way using paired electrolysis at cathodic half-cell in 10 M KOH solution. The concentration of electrogenerated Ni(I) was derived from potentiometric titration and different applied current density used to establish the suitable condition. The electrogenerated Ni(I) pumped on the scrubber column to remove the N<sub>2</sub>O which was entered under the wet scrubbing column. The removal of N<sub>2</sub>O was monitored by online FTIR gas analyzer which was attached to the column exit. The feed concentration and gas flow rate effect were analyzed on N<sub>2</sub>O removal and discussed. On line GC results compared for the removal of N<sub>2</sub>O and product analysis.

Key words: MER, N<sub>2</sub>O removal, electro-scrubbing, Greenhouse gas