Trichloroethylene (TCE) is a man-made chlorinated hydrocarbon, which is moderately soluble in water and widely used in many industrial processes. Due to the specific structure of TCE, it is most effectively removed by cathodic processes. Cathodic dechlorination of TCE would be the arrangement includes iron anode, MMO cathode, and palladium due to high removal efficacy attained (96, 92, 88, and 73 % when the current is 500, 250, 125, and 62 mA, respectively) and less precipitates formation.

In order to evaluate the performance of various electrode configurations for remediating TCE in ground water in a circulated electrolytic system, four different strategies were applied to find out how different factors such as the amount of palladium, flow rate, current, and types of electrodes can affect the removal efficiency of the system. Set (1): MMO anode and MMO cathode with 20 g Pd/Al₂O₃, (500-250-125-62 mA), 1 L/min; Set (2): Cast iron anode and MMO cathode, 20 g Pd/Al₂O₃, (500-250-125-62 mA), 1 L/min; Set (3): Cast iron anode and copper foam cathode 20 g Pd/Al₂O₃, (250-125-62 mA), 1 L/min; Set (4): Cast iron anode and copper foam cathode without Pd/Al₂O₃, (250-125-62 mA), 1 L/min.

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Fe²⁺ + 2OH⁻ → Fe(OH)₂↓