THIOSULFATE AND ELECTROLYTIC REDUCTION OF METHYL BROMIDE ADSORBED TO ACTIVATED CARBON

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Abstract. A previous scheme for methyl bromide capture and destruction involved capture by sorption of methyl bromide to activated carbon, followed by thermal desorption and passage through a thiosulfate solution for destruction by nucleophilic substitution reactions. Herein, the need for a separate desorption and thiosulfate bath treatment was re-evaluated. Methyl bromide was destroyed when sorbed to activated carbon surfaces in the presence of sodium thiosulfate. The reaction appeared to proceed by reduction, to produce bromide and methane. To evaluate the necessity of thiosulfate, further experiments quantified the destruction of methyl bromide sorbed to activated carbon by electrolytic reduction. These processes may lead to reductions in the capital and operating/maintenance costs for current methyl bromide destruction technologies.