Chemical oxidation technologies are useful in the oxidative degradation or transformation of a wide range of pollutants. The application of Fenton's reagent as a pretreatment step prior to biological treatment for industrial wastes and contaminated soils appears promising (1). Several hazardous pollutants can be oxidized by the hydroxyl radicals generated using Fenton's reagent or Fenton-like reactions. Because the hydroxyl radicals (·OH) is a highly reactive transient that can rapidly oxidize most organic substances (2). Formation of hydroxyl radical (·OH) under wet air conditions was explored before (3) and more extensive work is being done on nitrogen containing heterocyclic compound. This work has been expanded on sulphur containing heterocyclic compounds such as thiophene, 2-3 methyl thiophene and benzo[b] thiophene under the same conditions. Oxidation of thiophene and its derivatives by Fenton's reagent are being investigated using different metal/hydrogen peroxide system e.g. iron (II), copper (II), iron (II) + copper (II), vanadium (IV) and titanium (IV). Again there has been evidence of destruction products, a range of intermediate compounds has been observed using capillary column GC-MS technique. Some of the oxidation products have been synthesized in the laboratory for confirmation.

REFERENCES: