

Rate Coefficient for OH Radical Reaction with CO at Low Temperatures

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The OH radical reaction with CO is of crucial importance in the atmospheres of Mars and Earth. In this work, we measured rate coefficients for the reaction of OH with CO using laser photolysis/laser-induced fluorescence in 150K – 295K temperature range and pressure range 50-900 Torr of different gases diluents. The reaction is studied under pseudo first-order conditions, monitoring the decay of OH by LIF in the presence of a large excess of CO. The observed pressure and temperature dependences is analyzed to derive information about the branching ratio for the addition (HOCO) and disproportionation ($H + CO_2$) channels.