Cavity ringdown spectroscopy (CRDS) was used to study room temperature chemical reactions of the methylene amidogen radical (CH$_2$N). The radical was prepared by 193 nm photolysis of formaldoxime, CH$_3$NOH → CH$_2$N+OH. CRDS signal from both CH$_2$N and OH [A–X (1,0) band] was observed in the wavelength region 278-288 nm. By comparison of the OH and CH$_2$N signals, absorption cross section of the CH$_2$N was determined. To correct for the loss of OH radical by reaction, the rate constant of the reaction of OH with formaldoxime was measured, k(CH$_3$NOH+OH)= 2.5*10$^{-12}$ molecule cm$^3$ s$^{-1}$. Reaction of CH$_2$N with stable molecules such oxygen, hydrogen and methane could not be observed and only an upper limit of the reaction rate constants, < 1.0 *10$^{-15}$ molecule cm$^3$ s$^{-1}$, could be derived. Self-recombination was the main removal process for the CH$_2$N radical under the conditions of our experiment.