PYROLYSIS of carbonyl diazide (CO(N\textsubscript{3})\textsubscript{2}) has been shown to give diazirinone (CON\textsubscript{2}).\textsuperscript{a} While diazirinone decomposes over the course of a few hours under terrestrial conditions, there is the possibility for it to exist in space. In the pursuit of obtaining a rotational spectrum for diazirinone, we have started with the rotational spectroscopy of its immediate precursor, carbonyl diazide. Carbonyl diazide is highly explosive, and requires careful synthesis.\textsuperscript{b} Spectra in the range of 260-360 GHz were collected at room temperature and at −60\textdegree C. \textit{Ab initio} calculations at the CCSD/cc-pVDZ level predict that the conformation where both azide groups are \textit{syn} to the carbonyl is preferred. A second conformation, where one azide is \textit{syn} and one is \textit{anti}, is calculated to lie about 2 kcal/mol higher in energy. Pure rotational transitions for the ground state and multiple low-lying excited vibrational states of the \textit{syn-syn} conformation are readily observed and assigned.