We have investigated the effects of pressure on the decomposition rate of cyclotrimethylene-trinitramine, C₃H₆N₆O₆, more commonly known as RDX. The primary method of investigation was X-ray diffraction on samples of the material. Powder samples of RDX were placed in a polychromatic X-ray beam. X-ray diffraction data was collected on samples at three different pressures. Pressure was established and maintained by a diamond anvil cell (DAC). The study was conducted at Sector 16 of the Advanced Photon Source at the Argonne National Laboratory. As this was a preliminary study, more data that focuses on decomposition rates needs to be taken and analyzed. However, we collected some data that suggests that pressure increases the decomposition rate of RDX.