The mission of NASA’s MSL rover Curiosity is to characterize ancient “habitable” environments on Mars. Curiosity’s instrument suite includes CheMin, the first XRD flown in space. CheMin is a transmission X-ray pinhole camera that obtains a Debye-Scherrer pattern (mineralogy the sample), and a histogram of all X-ray events (composition of the sample). Results of MSL’s first 1,000 sols (Mars days) will be discussed, including the CheMin’s discovery of the first habitable environment on Mars.