ESTABLISHING AN INVENTORY OF COMPLEX ORGANIC SPECIES IN SPACE: IMPLICATIONS FOR PREBIOTIC CHEMISTRY. D. T. Halfen[1] and L. M. Ziurys[1], [1]Department of Chemistry and Astronomy, Arizona Radio Observatory, Steward Observatory, University of Arizona, 933 N. Cherry Ave., Tucson, AZ 85721.

The origins of life on Earth must have begun with simple organic compounds. A plausible source of such prebiotic molecules was the interstellar medium (ISM). Of the over 140 molecules that have been identified in interstellar gas, about half have been discovered in one source, Sagittarius B2(N), located in the Galactic Center. This giant molecular cloud is also home to the many large organic species observed in the ISM. How complex these species can become is unknown. In order to accurately establish an inventory of large, prebiotic organic molecules, we are conducting a continuous spectral-line survey of Sgr B2(N) at the confusion limit using the Arizona Radio Observatory facilities: the Kitt Peak 12m and the Submillimeter Telescope. The survey covers the 1, 2, and 3mm atmospheric windows in the range 65-280 GHz. Organic molecules are typically asymmetric tops often with internal rotation and/or inversion; therefore, their rotational spectra are quite complicated. The high density of transitions means that chance coincidences with other interstellar features are extremely likely. Therefore, a wide range of favorable transitions over a sufficiently large frequency range must be observed to reliably confirm the presence of individual species in this source – the purpose of this survey. Current results show that several potential prebiotic species, such as glycolaldehyde, acetamide, and methyl amine, are relatively abundant in Sgr B2(N), while others, such as hydroxyacetone, are not. Current results of this survey will be presented, along with its implications for interstellar organic chemistry and prebiotic synthesis