DETERMINATION OF ISOMER AND CONFORMER-SPECIFIC BRANCHING RATIOS OF BUFFER GAS COOLED MOLECULES DESORBED FROM AN ICE SURFACE WITH BROADBAND MM-WAVE ROTATIONAL SPECTROSCOPY

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A new instrument is described which combines buffer gas cooling with broadband rotational spectroscopy to probe molecules desorbed from an ice surface (CP-ICE). Here we report isomer and conformer-specific branching ratios of *n*- and *i*-propyl cyanide, the former of which may be in either the *gauche* or *anti* configuration. Following deposition of these species onto a 4 K surface, temperature programmed desorption (TPD) experiments are performed where the sublimed gas-phase molecules are injected into a buffer gas cell (BGC) at 25 K, cooled, and detected by broadband rotational spectroscopy in the 60 – 90 GHz regime. We compare these results with room-temperature gas-phase injection of these species into the 25 K BGC and report differences observed in the conformer branching ratios.