Supporting Information

Room Temperature Gas-Sensing of Two-Dimensional Titanium Carbide (MXene)

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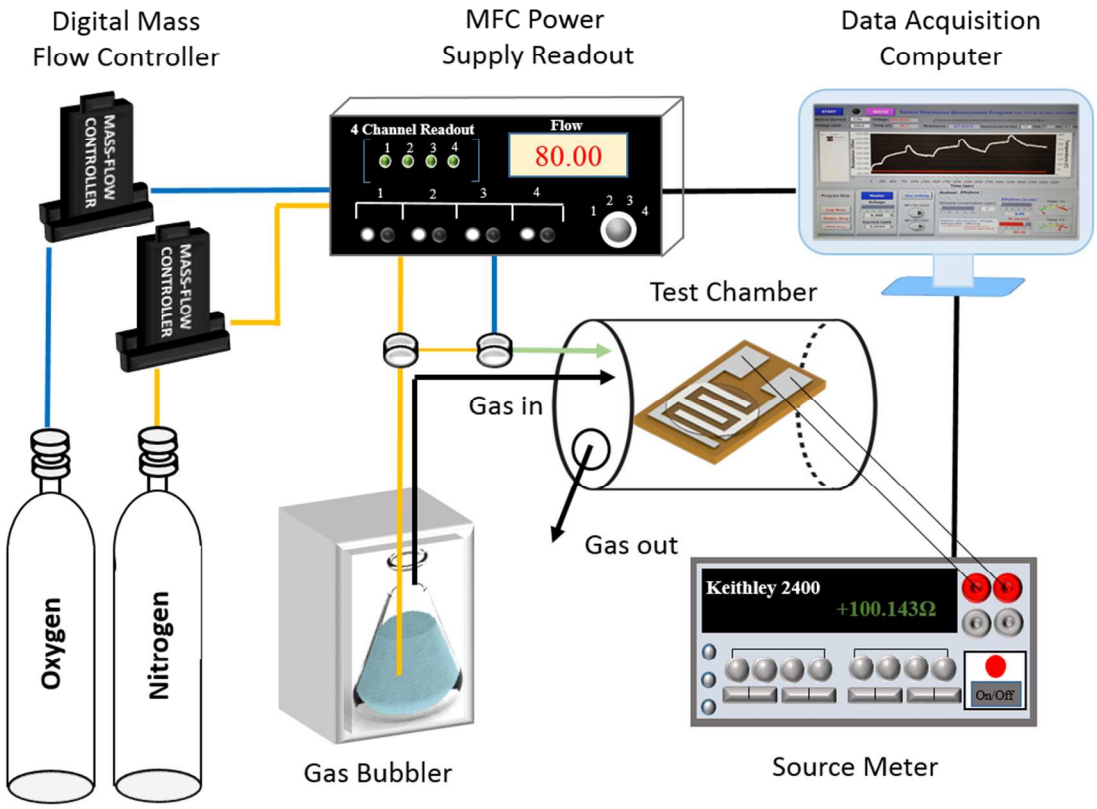

Figure S1. Schematic diagram of the gas sensing experiment setup.

Figure S1 shows the gas sensor characterization system. Two types of dry gas, i.e. oxygen and nitrogen, were used to generate synthetic air. The amount of synthetic air was controlled by using mass flow controllers. The synthetic air was comprised of 80sccm of nitrogen and 20sccm of oxygen. 20sccm of oxygen was injected into the test chamber and 80sccm of nitrogen gas was split in half. Half of nitrogen gas was introduced into the gas bubbler as a target gas carrier, and the other half nitrogen was directly entered into the test chamber. The nitrogen gas carrier is bubbled through the liquid analyte of interest for producing the target gases and subsequently mixed with the synthetic air in the test chamber. Before introducing target gas, the initial resistance of the sample was measured under synthetic air condition. After stabilization of the

sensor's resistance signal, a target gas introduces into the gas chamber. The resistance change of the sensor was measured by a Keithley 2400 source meter. Two conductive pads on the interdigitated electrode were used to extract the signal, and the data acquisition was controlled with a customized Labview program.