

## Supplementary Information

Detection of Water Contamination from Hydraulic Fracturing Wastewater: a  $\mu$ PAD for Bromide  
Analysis in Natural Waters

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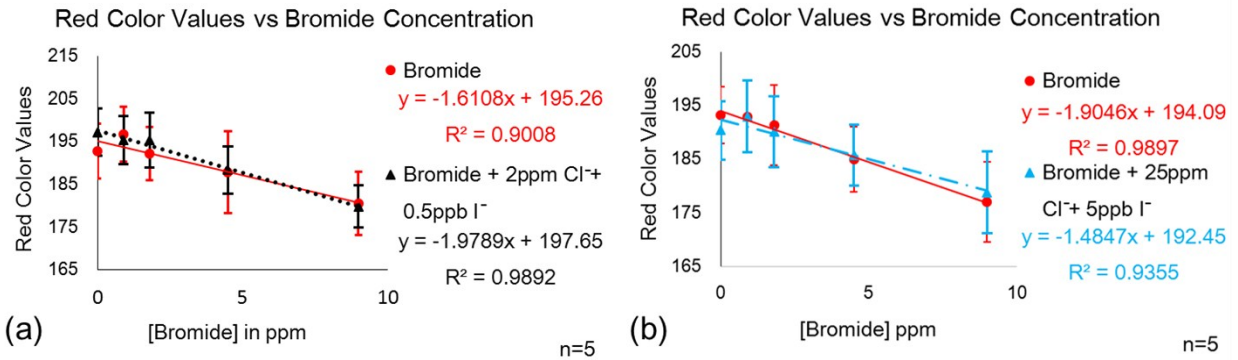


Figure S1. Bromide samples (0-9 ppm) were compared to samples spiked with (a) low-levels of chloride and iodide (2 ppm chloride and 0.5 ppb iodide) and (b) mid-levels of chloride and iodide (25 ppm chloride and 5 ppb iodide). The presence of chloride and iodide does not significantly affect the linearity and sensitivity of bromide detection at low-levels ( $p = 0.7848$ ) or mid-levels ( $p = 0.9457$ ) of chloride and iodide.

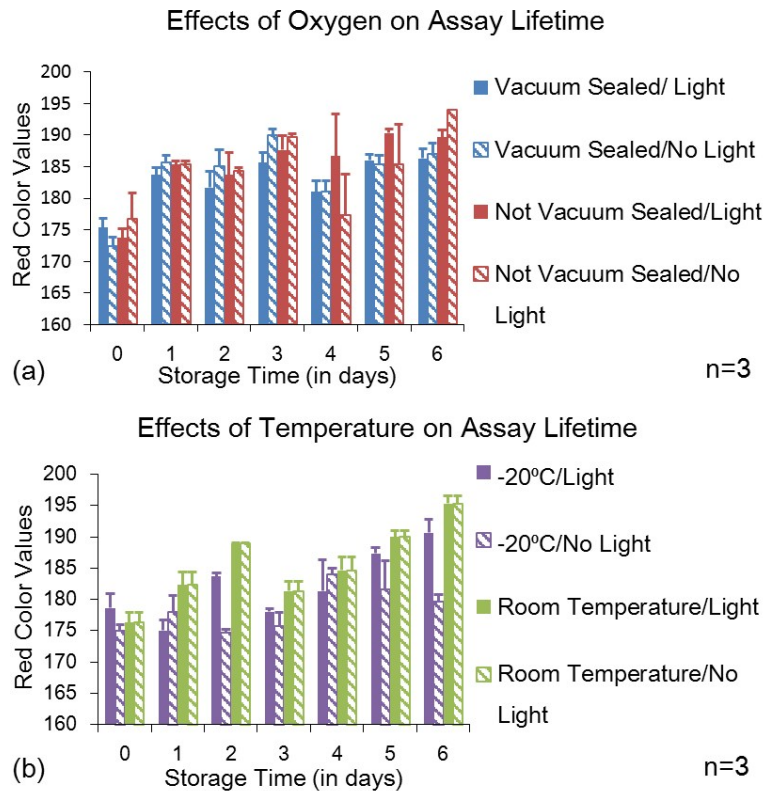


Figure S2. Assay lifetime under (a) oxygen-free and (b) low temperature conditions. Red color values were collected from triplicate assays. In both plots, assays stored without exposure to light are graphed as striped bars. Solid colored bars represent assays exposed to light. Increasing red color values indicate that the assay is no longer working because the yellow to blue color change no longer occurs.

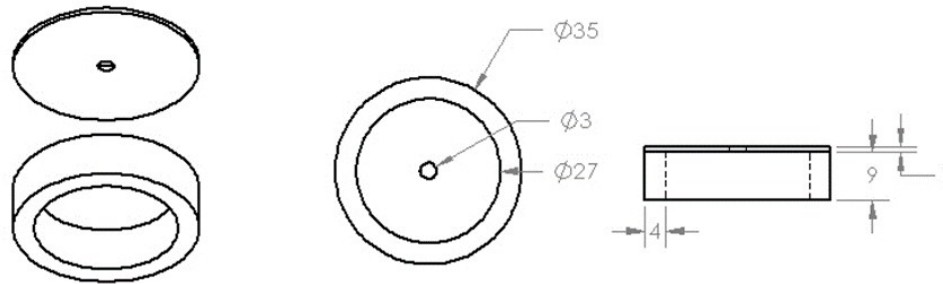


Figure S3. Design schematic of custom-built sample holder for the Node Chroma. Dimensions are provided in millimeters. The holder was fashioned out of PVC plastic.

Cost	\$298 USD (available at <a href="http://www.variableinc.com/">http://www.variableinc.com/</a> )
Light Source	Broad-spectrum white LED, 16-grid filtered photo detector array
Color Output	CIEXYZ, CIExyY, CIELab, LCH, sRGB, HEX, CMYK, LRV, $\Delta E_{2000}$ , $\Delta E_{cmc2:1}$ , $\Delta E_{cmc1:1}$ , $\Delta E_{94}$ and $\Delta Lab$
Field of View	12 mm diameter field of view for reading (which can be reduced as needed with a custom-built sample holder)

Table S1. Specifications for the NODE+ color sensor (Variable - Color Reference <http://www.variableinc.com/#!products> (accessed Jun 2, 2015))