



**Technical specification for a fiber-optic Raman spectroscopy probe**

Parameters:

Probe is optimized to work with the laser emission wavelength of 830 nm,

Diameter of the sampling area: 0.4 - 0.7 mm,

Number of emission fibers: 1,

Number of collection fibers: 7,

Emission (laser delivery) fiber type: low hydroxyl type fiber, 300-micron core diameter, numerical aperture NA 0.22,

Collection fiber type: low hydroxyl type fiber, 300-micron core diameter, numerical aperture NA 0.22,

Optical filter – long-pass filter on the ring of Raman signal collection fibers,

Optical filter – band-pass filter on the laser emission fiber,

Emission fiber connector type: FC-PC,

Collection fiber connector type: SMA, fibers arranged in a line,

Setup geometry: collection fibers are arranged around the emission fiber in a ring configuration,

Two-part converging lens: (1) a sapphire Plano-convex lens with 2-mm diameter curvature, and (2) a magnesium fluoride Plano lens, 1-mm thick,

Optical-grade epoxy glue for connecting the elements,

Geometrical dimensions:

Probe outer diameter: 1.8 - 2.5 mm,

Probe length: 7-15 cm,

Probe length with optical-fibers: 1-2 m,