



## SERIES 470 Non-Contact Diffuse Reflectance Probe

PSD's Series 470 Non-Contact Diffuse Reflectance Probe Assembly is a precision optical instrument that is designed for high performance NIR sampling (400–2500nm). This probe is well suited for rugged on-line, at-line or near-line industrial as well as laboratory QC applications. The minimum diameter of the probe is 1.0" (25.4mm) and lengths to satisfy the specific needs of the application.

The probe body is fabricated from 316/316L Stainless Steel, or the metal specifically requested. A major advantage of this probe is the unique arrangement of the fiber optics to provide a non-contact measurement capability. A protective sapphire window is provided to provide excellent chemically resistance and a very hard surface that resists etching from caustic solutions and scratching from hard or rough sample material. Each probe configuration also contains an integral bifurcated fiber optic assembly. One branch is for transmitting and the other branch is for receiving.

A standard 3 meter bifurcated fiber optic assembly is an integral part of the probe configuration. Longer length fiber assemblies are available on request. The ends of the fiber optic assembly are terminated with SMA connectors. The fiber termination can be changed to satisfy the specific connection requirements of any spectrometer. The fibers are contained in a very rugged and flexible sheathing material.

The energy source of the spectrometer is focused onto the end of one of the fiber assembly's legs. Very low loss, high throughput silica fibers are used to transmit the NIR energy to and from the probe body. The transmitting fibers are arranged into 6 bundles that are equally spaced in a ring that is angled to focus the radiated energy onto a 10mm spot, 6–8mm from the tip of the probe. The transmitted NIR energy interacts with the sample material and the diffuse reflection is collected through the sapphire window and the second portion of the fiber optic assembly that is centered in the probe and transmitted back to the spectrometer for analysis. The probe houses both the transmit and collection fibers in a special tip configuration. The unique bundling of the fibers optimizes the collection efficiency of the probe.

### PRODUCT HIGHLIGHTS & SPECIFICATIONS

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| Optional UV and visible light sampling                                                          | Alternate material per customer request to construct probe   |
| Optimized for remote fiber optic diffuse reflection spectroscopy of highly scattering materials | Standard sensing area 10mm, focused 6–8mm from the probe tip |
| High sensitivity with minimal spectral reflection or background noise                           | Capable of operating up to 100°C and 500 PSI                 |
| Different probe lengths available                                                               | Quick and precise raw materials screening                    |
|                                                                                                 | Easy to clean tip                                            |