

UV-Transparent Bare Fused Silica Capillaries for CZE Detection - Sales and Marketing

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Overview

This article explains why bare fused silica capillaries used in CZE (Capillary Zone Electrophoresis) are externally coated with polyimide, why the coating is not UV-transparent, and how UV detection is still performed using only a small exposed section of the tubing.

While polyimide is essential for mechanical strength, the MICROSOLV Window Maker™ allows users to create a UV-transparent detection window without compromising capillary durability.

Bare Fused Silica CE Capillaries and UV Transparency

All MICROSOLV capillary electrophoresis (CE) capillaries are manufactured from high-purity fused silica, which is naturally UV-transparent across a wide spectral range. This makes fused silica ideal for UV and UV-Vis detection methods commonly used in CZE.

However, in their functional form, CE capillaries are coated externally with polyimide, a durable polymer layer that protects the fragile glass during routine operation. Polyimide adds:

- Structural rigidity
- Mechanical strength
- Protection against flexing and handling stress
- Thermal and chemical durability

This coating ensures the capillary can be coiled, installed, and used repeatedly without breaking.

Why Polyimide Is Not UV-Transparent

Despite its mechanical advantages, polyimide is not UV-transparent. When light from the detector passes through a polyimide-coated section, the polymer absorbs and blocks UV wavelengths, preventing accurate and reproducible detection.

For this reason, CE systems require a UV-transparent window positioned at the detector's optical path.

Creating a UV-Transparent Detection Window

Even though the full capillary is coated in polyimide, this does not interfere with UV-based detection, because only a small section needs to be cleared of the coating.

To achieve this, users can employ the MICROSOLV Window Maker™, which precisely burns away the polyimide without damaging the underlying fused silica. This creates a clean and reliable UV-transparent window suitable for:

- UV detection
- UV-Vis detection
- Fluorescence detection requiring a clear optical path

The remainder of the capillary stays coated for structural strength, while the exposed region provides a clean, optically accessible point for detection.

Ordering Information:

Click [HERE](#) for capillaries for CE ordering information and pictures.

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MicroSolv Technology Corporation

9158 Industrial Blvd. NE, Leland, NC 28451

Tel: (732) 380-8900

Fax: (910) 769-9435

Email: customers@mtc-usa.com

Website: www.mtc-usa.com