Innovative Insights

SCIENTIFIC

Flexible Fused Silica Capillary: Packaging Considerations ›

By Joe Macomber
Molex Incorporated

Synthetic fused silica capillary tubing is a material of key importance in a broad range of analytical applications and is provided to the market in a variety of formats. This note discusses items to consider when specifying product packaging.

Introduction

Flexible synthetic fused silica capillary is routinely supplied to the market in long continuous lengths on low cost, Styrofoam or plastic spools. This packaging is well established and widely accepted. There are a variety of other product offerings, most of which are considered custom in nature (1). Scientists increasingly rely on Polymicro to provide these custom capillary products which include precision cleaved or saw cut pieces, windowed capillary, laser machined micro-components and a variety of similar value-added products.

During design of these custom products, it is important to consider how the product should be packaged. Packaging can impact product quality, cost and the efficiency of use upon receipt. Although there are a variety of options, there are also constraints of use. This note discusses some key packaging considerations.

Packaging Materials

A variety of packaging formats can be employed.

Bags: Simple, low cost polymer tube bags and Ziploc style bags can be specified. Higher quality, cleaner Level 100 bags are available in both tube and Ziploc format; these are noted for their low level of particulates and residue.

Tubes: Containers of either plastic or glass, similar to a sample vial or test tube can be used.

Well plates: These are an option for some high volume, smaller micro-components; often there is only one part per well. 96 or 384 well plates with an appropriate well depth can be specified.

Boxes and Gel-Paks: A plastic box with customizable, foam inserts work well for capillary bundles and some laser machined micro-components; foam contamination of parts can occur. Gel-Pak containers find periodic use for short parts; however, some silicone residue is possible. The gel adhesion number should be specified if known; Gel-Pak 4 is common for low mass parts.

Custom Containers: Molded plastic style containers are a good option for high volume parts. In addition, nested Styrofoam packages are good for fragile items such as capillary with laser machined ends.

Cooperative development of custom packaging allows for designs that are mutually beneficial.

Packaging Quantity

The number of parts per package should always be considered. In some instances parts must be individually packaged, but in most cases parts can be packaged together as a group. The key consideration from a product quality standpoint is the impact of part to part interaction during packaging, transport and handling. Glass on glass contact between parts will normally result in some level of damage to both parts. In some cases this is not a problem, while in others it can result in low performance or even part failure. For example, glass on glass contact is to be avoided if a high optical quality external surface is to be maintained. Protective coatings, such as polyimide often allow for multi-part packaging of components, even if small sections of the coating are removed. Certainly a relationship exists between the amount of coating removed and the appropriate packaging format. In almost every case, individually packaging will add cost. Coordinating the quantity per package with anticipated usage rate or production batch size is suggested and will improve ease of use.

Labeling

Identification of parts for batch traceability is often of paramount importance. Typically labels will include Material Number, Description, Quantity, Batch Number and Date of Manufacture. If additional items are needed, they should be included in the specification.

Conclusion

Thorough consideration of packaging materials, quantity and labeling during development of product specifications is important. Polymicro Technical Specialists can assist in determining your packaging specifications.

References

(1) "Capillary Products," *The Book on the Technologies of Polymicro*, 2005, p 3-5.

Originally Published in LCGC, The Application Notebook (February 2011)

molex®
one company › a world of innovation