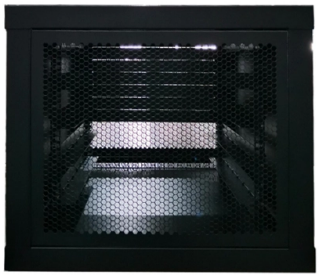
Dissolution of UHV optical cables



Article Overview

UHV optical cables are designed to maintain integrity under ultra-high-vacuum conditions, and their dissolution or degradation can be monitored in situ using fiber optic UV spectroscopy.

UHV Optical Cable Design

Ultra-high-vacuum (UHV) optical cables are engineered to operate in vacuum environments without outgassing or contamination. Typical UHV fiber feedthroughs use hermetically sealed step-index multimode fibers housed in stainless steel shells, often with SMA905 connectors for optical coupling . These feedthroughs are designed to handle optical powers up to 1 W and maintain low insertion loss (≤2.3 dB), while preventing trapped gases from compromising the vacuum. Materials such as 304 stainless steel and vacuum-compatible fibers (high- or low-OH) are used to ensure stability under UHV conditions .

Dissolution and Degradation Considerations

In the context of UHV, "dissolution" generally refers to chemical or photonic degradation of the fiber material rather than literal solubility. Factors affecting fiber integrity include:

• UV exposure: High-intensity UV light can induce solarization in silica fibers, reducing transmission efficiency over time .
• Vacuum-induced stress: Thermal cycling and mechanical stress in UHV can lead to microfractures or coating degradation....

Article Content

Comprehensive Validation Scheme for In Situ Fiber Optics Dissolution ...

One potential reason may be the lack of clear validation guidelines that can be applied for the assessment of suitability of fiber optics.

Cary 60 Fiber Optic UV Dissolution System

The Agilent Cary 60 fiber optic UV dissolution system performs in-situ UV dissolution analysis. Dedicated probes are automatically

Dissolution System with Cary 60 Fiber Optic UV

Agilent''s Cary 60 Fiber Optic UV Dissolution System is an ideal choice for analysis of dosage forms where rapid timepoint

Ultra-Long-Haul Transmission

What Is Ultra-Long-Haul Transmission? The ultra-long-haul transmission solution is mainly used in long-haul transmission scenarios

Fiberoptic UV Dissolution Ken Boda Method Development ...

•Agilent Cary60 Fiberoptic Dissolution System •Developing a Fiberoptic Method 2 Background of Fiber Optic Dissolution testing Fiber

Ultra-High-Vacuum, High-Temperature Multimode Fiber Optic

The jacketless-fiber design of these UHV, high-temperature cables minimizes the exposed surface area and reduces outgassing

Multivariate Chemometric Approach to Fiber-Optic Dissolution Testing

The use of fiber optics in in vitro dissolution testing opens up new possibilities for more powerful data evaluation since

Opt-Diss 410 UV Fiber Optic Dissolution System

Opt-Diss 410 In-Situ Fiber Optic UV System for Dissolution Testing The Opt-Diss 410 brings dissolution measurement directly to the

Degradation effects in FRNC jackets of optical fiber cables

Fiber optic cables are commonly used in long-distance and high-performance data networks, including telecommuni-cation, military,

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The UV fiber optics system has emerged in dissolution testing of solid dosage forms as a useful alternative to conventional

RESOLUTE UHV absolute optical encoder system data sheet

Resolutions are available to 1 nm (linear) or 32 bit (rotary), with a maximum speed up to 100 m/s. RESOLUTE UHV encoders are

Automated Systems | Agilent

The Agilent online UV dissolution systems include the Cary 60 fiber optic dissolution system, designed for in-situ measurement, and

Fiber Optic Connectors

SMA 905 Aluminum Fiber Connectors are used to terminate UHV and air service fiber optic cables. These SMA optical connectors

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Abstract: In-situ dissolution testing using UV fiber optics has attracted much attention in the pharmaceutical industry. Several

Accu-Glass Products, Inc.

UHV Bare Optical Fiber (Polyimide Buffer) Accu-Glass Products, Inc. offers non-terminated UHV fiber optic cable. Polyimide buffered

UV Fiber Optic Dissolution

The Opt-Diss 410 brings dissolution measurement directly to the vessel, eliminating the need for manual or automated sampling

In-Situ Dissolution Testing Using Different UV Fiber Optic Probes and ...

Introduction: Fiber optic technology for dissolution testing has been a topic of interest for many researchers for some years.

Vacuum Compatible Fiber Optic Patchcords

Our patchcords are designed for direct use with UHV fiber optic feedthroughs and vacuum adapters. Whether you need singlemode

In Situ UV Fiber Optics for Dissolution Testing – What, Why, and

In situ UV fiber optic systems provide many advantages over conventional dissolution testing. It generates real-time dissolution

Vacuum Fiber Optic Patchcords

In SM, MM and PM version SQS Vláknová optika a.s. is producer of Vacuum Optic patchcords/jumpers suitable for High Vacuum or

Agilent Online UV-Vis Dissolution Systems

For powerful, versatile UV dissolution analysis, look no further than Agilent''s portfolio of automated online solutions. Our UV

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