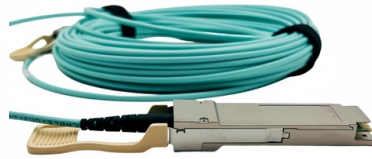


Chemistry of Optical Cable Splicing Procedures



AI Overview

Optical cable splicing involves careful chemical preparation of fiber coatings and cleaning agents to ensure low-loss, reliable connections.

Fiber Coating and Chemical Considerations

Optical fibers are typically coated with a lightly cross-linked acrylate polymer that protects the glass core. Before splicing, this coating must be removed to expose the bare glass. Chemical stripping uses solvents or degreasers to remove water-blocking gels and coatings without compromising fiber strength. Commonly tested agents include Fiber-Clean™, d'Gel, and HydraSol®, which are applied sparingly with lint-free wipes to prevent swelling or long-term softening of the acrylate coating (Corning). Excessive exposure or soaking can weaken the fiber and reduce mechanical reliability.

Cleaning and Surface Preparation

After chemical stripping, fibers are cleaned with isopropyl alcohol or similar solvents to remove residues and contaminants. Proper cleaning ensures that surface contaminants do not interfere with fusion or mechanical alignment, which could increase optical loss or back reflection. The cleaning process must be controlled: minimal wiping strokes and careful drying prevent chemical residues from remaining on the fiber surface, which could degrade splice performance over time....

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For more information, pricing, or custom solutions, please contact us:

Website: <https://ntmmgroup.co.za>

Email: sales@ntmmgroup.co.za

Phone: +27 82 471 2596

Address: Unit 7, Optic Park, 24 High-Tech Lane, Century City, Cape Town,
7441, South Africa

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