



**Technical Reports:
Visual Inspection-Adhesion Failure**

POINTek, Inc.

◆ General Description

- This Document Presents the **Visual Qualification/Reliability Analysis for the POINTek's Assembly Process: Reliability Inspection of Proprietary Adhesive Curing Process Coupling of Single Mode Fiber Array into PLC Splitter Chip.**
- Most of Device Failures (> 95%) in Planar Optical Devices Are Initiated from the Fiber Arrays and Their Interface to Chip Coupling.

◆ Accelerated Aging

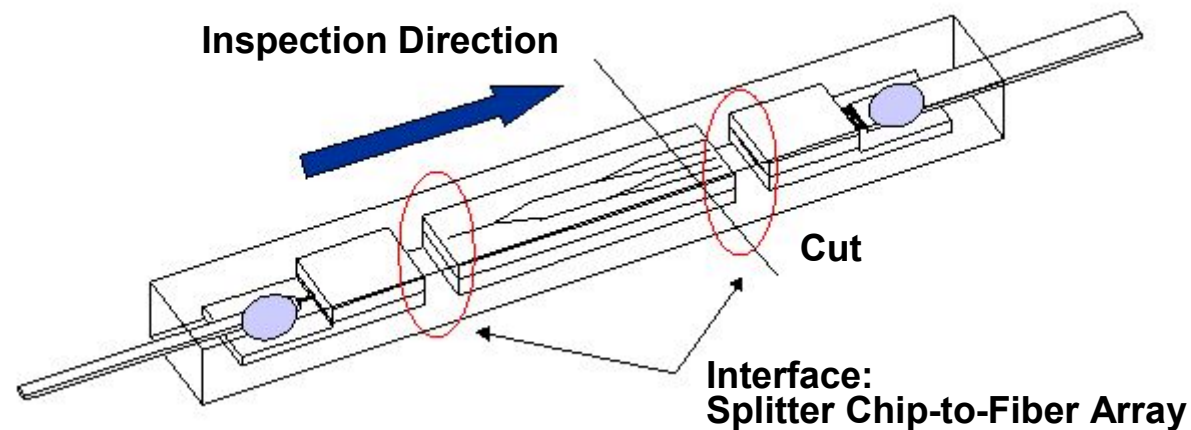
- **Delamination Phenomena of Chip-to-Fiber Array Interface** in Various Environmental Conditions Are Inspected.
- According to POINTek's Earlier Exclusive Study, **100°C Boiling Water Immersion Condition Is about 100~200 Times More Accelerated Than 85°C/85% RH Environmental Condition.**

For the Additional Reliability Information, Please Contact us.

2. Delamination Inspections

POINTek

- ◆ Delamination Issue
 - Aging Condition
 - 43°C Water Immersion Storage Test
 - 100°C Water Immersion Storage Test
 - Inspection at the Interface of Splitter Chip-to-Fiber Array



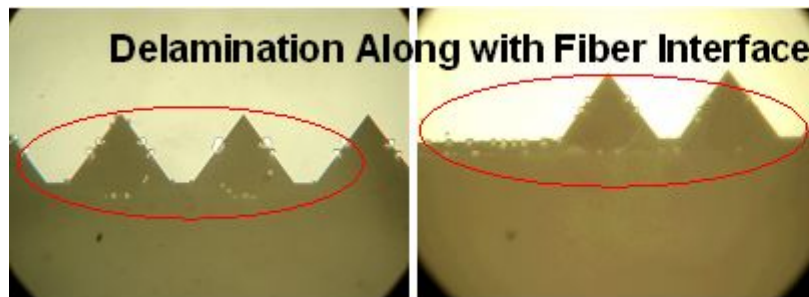
Planar Optical Integration Technology

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◆ **Interface Delamination Due to Fiber Array Failure**

➤ **Conventional/Current**

➤ **POINTek**

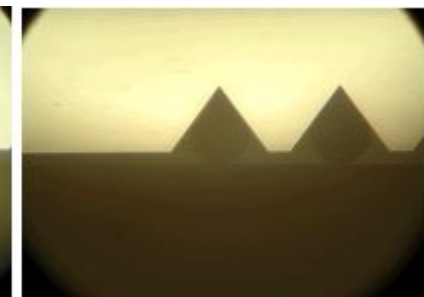


672Hrs at 43°C Water

1512Hrs



672Hrs at 43°C Water

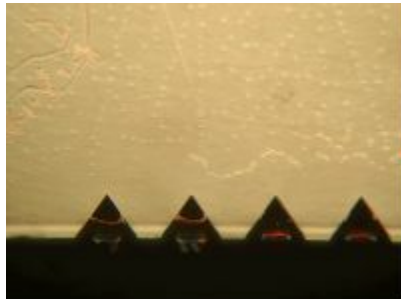


1512Hrs

- ✓ Delamination Patterns Were Initiated from Non-Reliable Fiber Array Attachment.
- ✓ Conventional Product Shows Minor Delamination Problem in Pigtailed-Facet Interface after 672Hrs (28 Days) at 43°C Water, and Delamination were Found to Be Growing after 1512Hrs (63 Days).
- ✓ No Sign of Surface Delamination in POINTek's Sample after 1512Hrs (63 Days).

◆ Interface Delamination Due to Attachment Process Failure

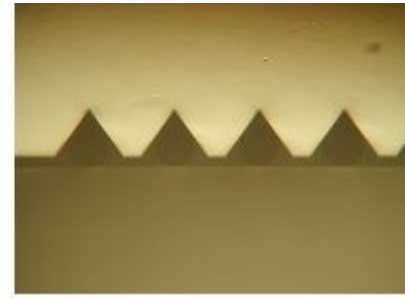
➤ Conventional/Current



~ Days at 85°C/85% RH



➤ POINTek



72Hrs at 100°C Water



216Hrs

- ✓ Due to the Pigtail Process Failure of the Conventional Product, Major Delamination Problem Was Inspected after 24Hrs at 85°C/85% RH.
- ✓ No Sign of Delamination in POINTek's Sample after 72Hrs (3 Days) at 100°C Water.
- ✓ Very Minor Sign of Delamination in POINTek's Sample after 216Hrs (9 Days) at 100°C Water.