

**Corning® Fibrance™ Light-Diffusing Fiber
Termination Process**
8.4.15

Purpose: The purpose of this procedure is to detail the recommended termination process for Fibrance™ light diffusing fibers to prevent glare from excess light exiting the fiber end.

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Background

Corning® Fibrance™ Light-Diffusing Fiber is a glass optical fiber optimized for thin, colorful, ambient lighting. This technology enables decorative lighting to be designed or embedded into tight or small places where other bulky lighting elements cannot fit.

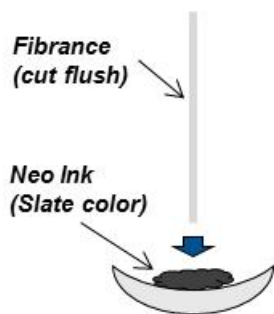
Corning Fibrance is designed with a diffusion length that ensures that 90% of the incident illumination from the laser source is diffused through side emission. This results in about 10% of the source laser light being emitted at the distal end. Sometimes this can cause distracting glare to an observer. This document details a termination process that blocks glare in a UV cured ink.

Tools and Supplies

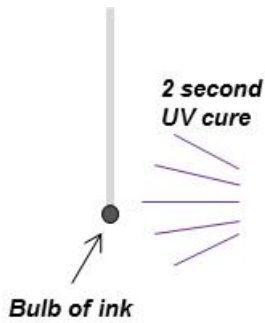
- Fibrance fiber or buffered Fibrance fiber for termination
- Scissors or shears for cutting fiber to length
- UV curable Ink – e.g. PhiChem Optical Fiber Coloring Ink – Slate Color - KI005
- UV Spot Cure instrument – e.g. Lesco Superspot Max with 3ft fiber optic light guide
 - 100W DC short arc Mercury vapor - UVA Peak (@315-400nm) 25,000 mW/cm²

Procedure

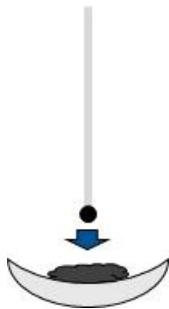
- Pipet approximately 0.25 ml of ink material onto a small dish or glass substrate
- Cut end of optical fiber/buffer with scissors or shears so that buffer and fiber end are flush with one another.



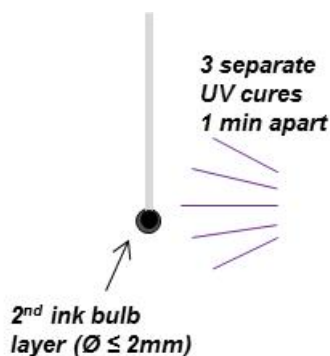
- Dip end of fiber/buffer into UV curable ink material sufficient to cover the fiber/buffer end and form a small bulb.



- Cure ink bulb under UV spot cure for 2 seconds at a distance of approximately 1cm



- Dip inked end of fiber/buffer into the ink again
Dip progressively deeper to produce a larger bulb.
- Bulb should be no bigger than 2 mm diameter and extend no more than 2mm in length



- Cure the larger bulb of ink under UV spot cure, by repeatedly passing under UV spot 5 times for about 2 seconds each time
- Wait about 1 minute to allow fiber to cool
- Pass ink bulb under UV spot cure again 5 times
- Wait about another 1 minute to allow fiber to cool
- Pass ink bulb under UV spot cure again 5 times.

- Bulb should be fully cured and covering fiber/buffer end sufficient to prevent glare
- Visually inspect the termination by activating Fibrance source laser and observing end
- If light is still penetrating the fiber/buffer end and producing glare, continue dipping ink bulb into ink repeatedly and UV spot curing until the glare is suppressed.