

# Tie Layer

Enhanced Catheter Construction

## Overview-

Delamination is a challenging failure mode in catheter construction; it carries both risk and cost burden for device manufacturers. Detection typically does not occur until final inspection – after catheter assembly is complete – resulting in significant product loss. Delamination can also lead to failures in the field and product recalls.

Addressing this industry need, Zeus has developed a Tie Layer that improves jacket-to-liner bond strength and reduces the risk of delamination. By creating a stronger bond between the outer catheter jacket and inner liner, Tie Layer helps to improve patient safety, enhance catheter performance, and reduce manufacturing costs. Tie Layer is a true total solution in catheter design and manufacturing.

## Multiple Options

*Tie Layer can be applied to almost any round substrate. For catheter construction, products that can be manufactured with a tie layer include:*

- Tie layer-coated PTFE liners and multi-lumen tubing
- Tie layer-coated FEP liners
- Tie layer-coated polyimide tubing



BIOCOMPATIBILITY



FLEXURAL MODULUS



HARDNESS/DUROMETER



*Tie Layer creates a melt-bondable surface that improves adhesion to both the liner and catheter jacket during the reflow process.*

## APPLICATIONS

- Catheter construction
- Improves bondability of component layers in many applications

## CAPABILITIES AND SIZING

- Standard OD ranges 0.015" – 0.250" (0.381 – 6.350 mm)
- Thicknesses 0.0001" – 0.0003" (0.0025 – 0.0076 mm)
- Available Tie Layer Materials:
  - Pebax® – 25D to 72D durometers
  - Tecoflex® 80A & 93A [Thermoplastic urethanes (TPUs)]
  - Vestamid® 75D (Nylons)

## KEY PROPERTIES

- Biocompatible USP Class VI approved material
- Reduces delamination
- Improves bond strength 20 - 40%
- Increases yields
- Lowers manufacturing cost/scrap
- Tailored catheter performance
- Maintains overall catheter profile

