

## Consumer Applications

### Highlighter

Porex pens the book on superior writing instruments with the design of the bi-component or “tipped” marker nib for a new highlighter. The nib is super-strong to withstand highly automated press-fit assembly, yet soft for a smooth writing experience.



### Design Challenge

Pen manufacturers constantly search for innovative solutions to enhance the writing experience. Manufacturers find it equally important to maximize the efficiency of the production process, especially for highly automated press fit assembly, which requires pen nibs with good strength properties. The difficulty comes in developing marker nibs of adequate strength without compromising the smooth writing feel produced by a softer nib. Porex was asked to solve this design challenge and develop a marker nib that combined the high sensory feel of a soft tip nib while maintaining strength for assembly

### Solution

Porex development engineers and materials scientists determined that two distinct polymer components would be necessary to fulfill the design objectives. The shank of the marker nib positioned inside the pen’s barrel required a high-strength polymer, while the writing side required a soft cushion-like material. To meet these objectives, the Porex specialists developed a new bi-component design, referred to as a tipped nib, featuring a rigid high-density polyethylene for the shank and a softer UHMW polyethylene for the writing surface. Next, Porex’s manufacturing engineers devised a molding process enabling the tipped nib to be manufactured in a single-step operation.

### Results

The development of the bi-component marker nib is reflective of Porex innovation both in terms of material technology and manufacturing process development. As a result of Porex’s vast understanding in capillary systems material properties, a bi-component solution was successfully developed and commercialized that contained both soft and rigid characteristics. Due to Porex’s commitment to continuous improvement in the arena of manufacturing excellence, an innovative production scheme was created to support the production volume and price point of the finished design. Considered independent from one another, both examples of innovation are worthy of reward but you should feel confident in knowing that Porex has the depth and breadth to develop and support innovative solutions from the front door to the shipping door.

*By combining ideas, know-how and proven results with the highest standard of innovation and excellence, POREX Porous Media provides unique solutions for various applications.*



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