PERLAST®
Perfluoroelastomer Parts

Perlast® micro seals for Upchurch 'Lab-on-a-Chip' analysis applications

-- Upchurch Scientific® selects Perlast seals for NanoPort™ connections

Perlast perfluoroelastomer micro seals are being used in the new range of NanoPort connections for 'Lab-on-a-Chip' applications from the leading manufacturer of fittings, tubing, and accessories for micro- and nano-scale analyses, Upchurch Scientific, Inc.

Lab-on-a-Chip applications are scaled-down versions of familiar laboratory procedures, such as liquid chromatography and capillary electrophoresis. Using chips often similar in size to a microscope slide, the technology boasts extremely small-bore passageways etched in silicon, quartz or glass. This miniscule scale facilitates the effective analysis of trace samples to an extent that cannot be achieved through conventional scale instrumentation.

One application in which Lab-on-a-Chip devices offer significant improvement over other, more traditional methods is capillary electrophoretic analysis of DNA fragments. Chip-based analyses of this type allow for substantially reduced analysis times while maintaining similar efficiency to other "standard" techniques. Other Lab-on-A-Chip applications allow for reduced solvent consumption and increased analysis sensitivity.

The Challenge

The challenge in almost all chip-based applications comes in getting fluid in and out of the device. Upchurch NanoPorts solve this problem by bonding ports to the device's outer surface, creating a robust, reliable method for connecting flow-path tubing to the chip with fittings. The Perlast seals, designed and manufactured by Perlast Ltd., are used to create an inert and biocompatible seal between the NanoPort and the chip surface. In addition, Perlast ferrules are used to create a seal between the tubing and the chip, while withstanding inline system pressures up to 1,500 psi (103 bar).

Clear Choice

"Perlast perfluoroelastomer serves as a key component of our NanoPort Connections technology", cited Mark Kincy, marketing manager of Upchurch Scientific. Commenting on the choice of Perlast perfluoroelastomer and PPE, Kincy continued, *"PPE demonstrated it could manufacture the seals and ferrules to meet the very tight tolerances demanded by the Lab-on-a-Chip application and our precision-engineered NanoPorts. The chemical inertness of Perlast preserves the integrity of biological samples, which was also key to its selection. Equally important, PPE provided the seals and ferrules we needed in a time frame and at an R&D cost that no other company could achieve, greatly shortening the development time of our NanoPort product line."*

In the United States, Perlast is available from JL White Technical Sales, Inc. – a manufacturers' representative specializing in advanced polymers, electromechanical products and fluidic components for the analytical and diagnostic industries.

Upchurch Scientific, Inc.

Based near Seattle, Upchurch Scientific was founded in 1975 by Paul Upchurch, and became a division of Scivex®, Inc. in 2000. Upchurch has built its reputation as an industry leader in fluid-transfer components. Specializing in extrusion and molding of high performance engineering thermoplastics, Upchurch Scientific manufactures tubing, fittings, valves and accessories for the demanding HPLC market. The company also serves analytical and diagnostic equipment, medical devices and related liquid-transfer markets. Please visit www.upchurch.com for more information.