

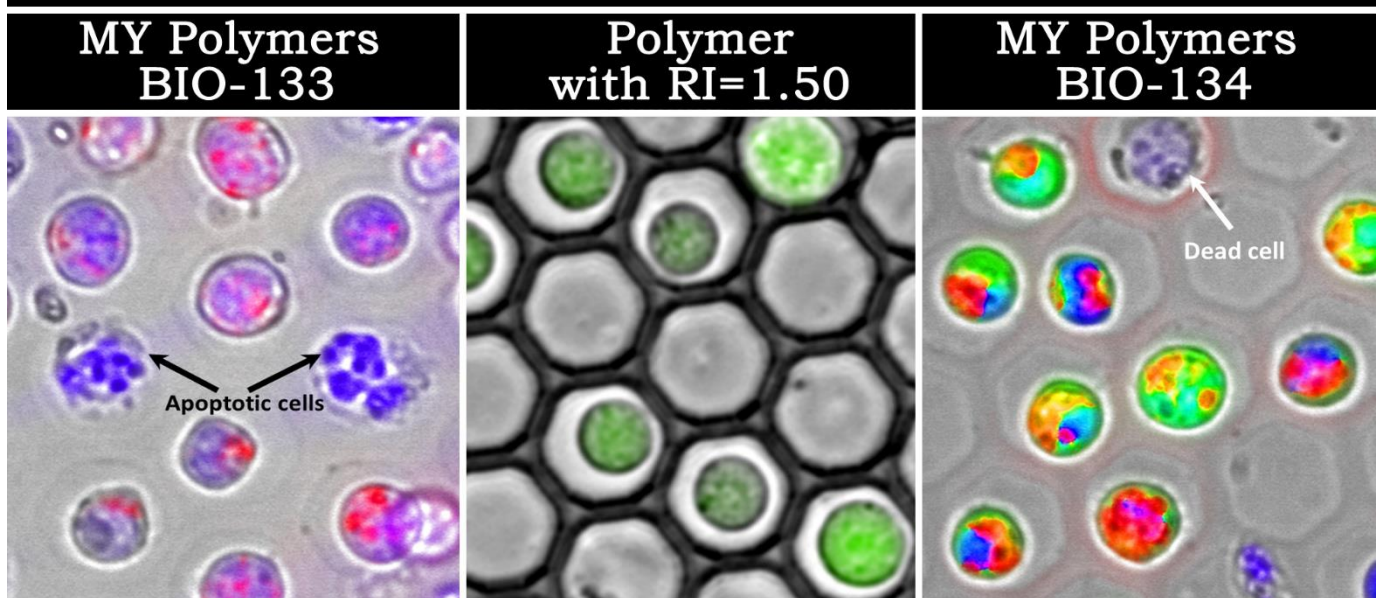
Bio-Photonic Materials

Matching The Index of Water, Cells and Tissues is the Key Feature

Our low index materials are used in Bio-Photonics because they match the Refractive Index of water, cells and tissues, which is 1.33.

A growing number of companies and research institutes are becoming aware to the fact that using materials with an index of 1.33 or 1.34 enables breakthrough in a broad range of applications, including **micro-arrays**, **micro-pillars**, **SPR bio-sensors**, and **micro-fluidic devices**.

Micro Chambers for Live-Cell Imaging



Imaging over 3-D structures: Pico-liter wells, Micro-pillars

There is a special advantage for our polymers in microscope imaging over 3D micro structures, such as pico-liter wells or elastomeric micro-pillars, which are used in the research of cellular processes. When the 3D structures are made of a polymer with an index 1.33 or 1.34, it practically eliminates optical distortions. This enables a breakthrough in image quality and resolution.

In order to enable high quality fluorescence microscopy, MY Polymers developed the non-fluorescent UV Cured polymers BIO-133 and BIO-134. These products were also designed to minimize cytotoxicity. Together, with MY-133-V2000 and MY-134, these polymers enables the construction of various 3D patterned surfaces which do not degrade the image quality.

A breakthrough in image quality was demonstrated when BIO-133 and BIO-134 were used for construction of micro-plates and micro-pillars (in bio-mechanical research).

The following table includes our most widely used bio-photonic materials:

Product	RI @ 589nm	RI @ 950nm	CURE	Adhesion g/cm ²	Elastic Modulus MPa	Viscosity CPS	Tensile MPa	Elongation at Break %	Hardness, Shore	Shelf Life, months
BIO-133*	1.334	1.329	UV	NA	5	2200	NA	60	70A	6
BIO-134*	1.342	1.337	UV	NA	5.6	5500	NA	36	71A	6
OF-134-V2**	1.346	1.341	UV	28	17	2500	NA	36	86A	6
MY-133-EA**	1.338	1.333	UV	27	3.6	2300	1.0	45	62A	6
MY-133-V2000***	1.333	1.329	UV	9	5.2	2900	2.4	60	70A	12
MY-132***	1.324	1.320	UV	3	2.5	200	NA	<10	65A	12
MY-134***	1.344	1.338	UV	6	5.6	5000	1.8	40	70A	12
MY-133-MC****	1.330	1.325	MC	NA	NA	400	NA	NA	soft	6
MY-132-MC****	1.319	1.315	MC	NA	NA	200	NA	NA	soft	6
MY-131-MC****	1.312	1.308	MC	NA	NA	145	NA	NA	very soft	6

* Used for 3D patterns; Non-fluorescent, less cytotoxic version of MY-133-V2000 and MY-134.

** Replacement for the obsolete MY-133-DC used for micro-stencils.

*** Best candidates for micro-fluidic devices.

**** Moisture Cured coatings used in SPR biosensors.

SPR Bio-Sensors:

Our Moisture Cured coatings MY-133-MC (index 1.33) is used in SPR bio-sensors, and whenever there is a need for a coating that matches the index of cells or cells. These Moisture Cured coatings are very convenient to use, since they cure spontaneously by the humidity in the atmosphere, and they do not require UV curing.

Micro-Fluidic Devices:

MY-133-V2000 and BIO-133 are used in the construction of micro-fluidic devices. Since the index of the micro-channel walls is lower than the index of the liquid contained in the channels, the liquid itself can serve as the light-guiding medium. This feature enables various new developments in microfluidic device technology.

Micro-Stencils for Protein Patterning:

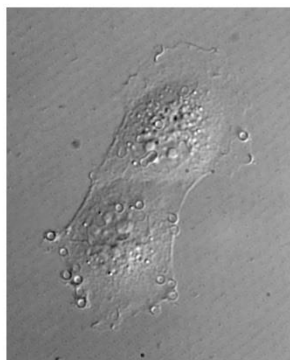
Another important application for our materials is their use as micro-stencils for protein patterning. For this purpose, researchers report the best results when using MY-133-V2000, and OF-134-V2. These materials form elastic membranes which are easy to manipulate due to their adequate Young's modulus and elongation.

Emerging New Applications:

New bio-photonic applications for our low index polymers and coatings are emerging continuously. MY Polymers is working with researchers around the world to keep improving our materials. We are always open to hear, learn, and try to solve a new challenge.

Micro Pillar Imaging

BIO-134



PDMS

