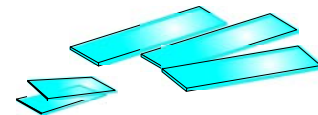




**TIRF and TIRF-EC lightguides. TIRF and TIRF-EC slides**  
**Chemically modified and biologically functionalized**  
**TIRF and TIRF-EC lightguides, and TIRF and TIRF-EC slides**



TIRF Labs offers untreated, ultraclean, chemically modified, and biologically functionalized TIRF and TIRF-EC slides, and TIRF and TIRF-EC lightguides. *See below the definition of TIRF slides and lightguides*

**Definitions:**

**TIRF slide** - optical substrate with two large surfaces polished and side facets ground. If the dimensions of a rectangular slide are: 25.4 mm x 76.2 mm x 1.0 mm, only two large surfaces 25.4 mm x 76.2 mm are polished. End facets 25.4 mm x 1.0 mm and side facets 76.2 mm x 1.0 mm are ground. TIRF slides are designed for use with prism-based TIRF. TIRF slides can be used for other than TIRF applications, for example, epi-fluorescence experiments. TIRF slides are not intended for use with lightguide-based TIRF (lg-TIRF). Because end facets of TIRF slides are ground, they exhibit compromised quality of coupling light through one of the end facets.

**TIRF-EC slide** is a TIRF slide, one large surface of which is coated with optically transparent electroconducting layers of Indium Tin Oxide (ITO) or tin dioxide SnO<sub>2</sub>. TIRF-EC slides are designed for TIRF experiments in prism-based TIRF geometry with electrochemical and electric field control (TIRF-EC), including spectroelectrochemical studies, use of electrophoretic and dielectrophoretic effects in the TIRF flow chamber, or in a compartments adjacent to the TIRF flow chamber. More expensive TIRF-EC lightguides are not necessary for TIRFing with prism-based geometry, but can be used instead of TIRF-EC slides.

**TIRF lightguide** is a TIRF slide with one or two end facets polished. If the dimensions of a rectangular lightguide are: 25.4 mm x 76.2 mm x 1.0 mm, two large surfaces 25.4 mm x 76.2 mm, and at least one of the end facets 25.4 mm x 1.0 mm of the lightguide are polished. Polishing of end facets allows for minimizing scatter of excitation light and facilitates coupling of excitation light into the lightguide. After entering through one of the end facets, propagating excitation light, similar to reflections in an optical fiber, undergoes multiple reflections in TIRF lightguide from the top and the bottom of the lightguide that are large surfaces 25.4 mm x 76.2 mm in the above case. In the case of 0.17-mm-thick lightguide the reflections occur between large surfaces that are 0.17 mm apart.

**TIRF-EC lightguide** is a TIRF lightguide, one large surface of which is coated with optically transparent electroconducting layers of Indium Tin Oxide (ITO) or tin dioxide SnO<sub>2</sub>. In other words, TIRF-EC lightguide is a TIRF-EC slide, at least one end facet of which is optically polished to minimize scatter of excitation light entering through the end facet. TIRF-EC lightguides are designed for TIRF experiments with lightguide-based TIRF geometry with electrochemical and electric field control (TIRF-EC), including electrophoresis and dielectrophoretic effects in the TIRF flow chamber, or in a compartments adjacent to the TIRF flow chamber. We do not recommend using TIRF-EC slides instead of TIRF-EC lightguides, because the former produce additional scatter at the interface, where excitation light enters the lightguide.

*TIRF slides and TIRF lightguides are made of selected low fluorescence glass, silica, and sapphire to minimize the background fluorescence. Refractive indices of glass coverslips and slides are 1.52-1.53 @ 546 nm; silica – 1.46 @546 nm, sapphire – 1.76-1.77 @ 532 nm. Sapphire coverslips are made of crystalline synthetic sapphire with random orientation. Sapphire crystals exhibit small birefringence with refractive indices for the extraordinary and ordinary beams 1.76486 and 1.7717, respectively [<http://www.tydexoptics.com>]. Typically, for TIRF and TIRF-EC applications small birefringence of a 170-micron sapphire coverslip is not noticeable.*

<b>TIRF and TIRF-EC lightguides. TIRF and TIRF-EC slides</b> <b>Chemically modified and biologically functionalized TIRF and TIRF-EC lightguides,</b> <b>and TIRF and TIRF-EC slides</b>		
	<b>TIRF and TIRF-EC slides, and TIRF and TIRF-EC lightguides</b>	
Al2O3_2240170	Sapphire TIRF lightguides 22 x 40 x 0.17 mm. Two large surfaces 20x40mm and one end facet 22x0.17mm are polished. Box of 5	\$325
Al2O3_2040170	Sapphire TIRF lightguides 20 x 40 x 0.17 mm. Two large surfaces 20x40mm and one end facet 20x0.17mm are polished. Box of 5.	\$325
LG2240170	Low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$100
LSiO225751000	Silica 1-mm TIRF lightguides 25.4x76.2x1.0mm. Two large surfaces 25x76mm and both end facets 25x1mm are polished. Box of 5	\$275
SG25751000-ITO	ITO-coated 1-mm glass TIRF-EC slides ~25x76x1mm. One large surface 25x76mm is coated with optically transparent layer of Indium Tin Oxide (ITO). Box of 5	\$450
LSG25751000-ITO	ITO-coated 1-mm glass TIRF-EC lightguides ~25x76x1mm. Two large surfaces 25x76mm and both end facets 25x1mm are polished. One large surface 25x76mm is coated with optically transparent layer of Indium Tin Oxide (ITO). Box of 5	\$580
SiO225381000	Silica 1-mm TIRF slides 25x38x1.00 mm. Two large surfaces 25x38mm are polished. Box of 5	\$175
SiO225381000-ITO	ITO-coated 1-mm silica TIRF-EC slides 25x38x1.00 mm. One large surface 25x38mm is coated with optically transparent layer of Indium Tin Oxide (ITO). Box of 5	\$350
	<b>Chemically Modified and Biologically Functionalized TIRF and TIRF-EC slides and TIRF and TIRF-EC lightguides</b>	
Al2O3_2040170-OH	Superclean highly hydrophilic sapphire lightguides 20x40x0.17 mm. Box of 5.	\$530
Al2O3_2040170-CH	Hydrophobic sapphire lightguides 20x40x0.17 mm. Box of 5.	\$530
Al2O3_2040170-Am	Aminated sapphire lightguides 20x40x0.17 mm. Box of 5.	\$530

Al2O3_2040170-Ald	Aldehyded sapphire lightguides 20x40x0.17 mm. Box of 5.	\$530
Al2O3_2040170-Epx	Epoxy-modified sapphire lightguides 20x40x0.17 mm. Box of 5.	\$530
Al2O3_2040170-Btn	Biotinylated sapphire lightguides 20x40x0.17 mm. Box of 5.	\$600
Al2O3_2040170-Stv	Streptavidin-coated sapphire lightguides 20x40x0.17 mm. Box of 5.	\$755
LG2240170-OH	Superclean highly hydrophilic low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$320
LG2240170-CH	Hydrophobic low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$320
LG2240170-Am	Aminated low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$320
LG2240170-Ald	Aldehyded low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$320
LG2240170-Epx	Epoxy-modified low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$320
LG2240170-Btn	Biotinylated low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$425
LG2240170-Stv	Streptavidin-coated low fluorescence glass lightguides 22x40x0.17 mm. Box of 5.	\$530
SiO225751000-OH	Superclean highly hydrophilic low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.	\$440
SiO225751000-CH	Hydrophobic low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.	\$440
SiO225751000-Am	Aminated low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.	\$440
SiO225751000-Ald	Aldehyded low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.	\$440
SiO225751000-Epx	Epoxy-modified low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.	\$440

<b>SiO225751000-Btn</b>	<b>Biotinylated low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.</b>	<b>\$645</b>
<b>SiO225751000-Stv</b>	<b>Streptavidin-coated low fluorescence silica 1-mm TIRF lightguides 25x76x1mm. Box of 5.</b>	<b>\$755</b>