

Reagents & kits

Nexterion® reagents



The quality of the results from a microarray experiment is dependent on many factors, the substrate utilized for printing, the printing buffer, the labeling method employed, and the blocking and hybridization conditions utilized. For this reason, SCHOTT Microarray Solutions provides a range of ready-to-use reagents optimized to get the best performance from the Nexterion® coated slides.

Nexterion® Reagents for processing coated slides:

Nexterion® coating	Spotting		Blocking	Hybridization	Washing
	Spotting buffer	Low evaporation buffer			
AStar/A+	Nexterion® Spot	Nexterion® Spot A HD	Nexterion® Block A	Nexterion® Oligo Hyb Nexterion® Hyb (A+ only)	*
			Nexterion® Aminosilane Slide Processing Kit (includes all reagents for blocking, hybridization and washing)		
AL	Nexterion® Spot	*	*	Nexterion® Hyb Nexterion® Oligo Hyb	*
E	Nexterion® Spot Nexterion® Spot PB (Protein applications)	Nexterion® Spot LE kit	Nexterion® Block E Nexterion® Oligo Pre-Hyb	Nexterion® Hyb Nexterion® Oligo Hyb	*
			Nexterion® Epoxy Slide Oligo Processing Kit (includes all reagents for blocking, hybridization and washing)		
H	Nexterion® Spot PB	*	*	Nexterion® Hyb (DNA applications)	*
P	Nexterion® Spot PB	*	*	Nexterion® Hyb (DNA applications)	*
NC	Nexterion® Spot PB	*	*	*	*

* No pre-made Nexterion® reagent available. Please check the appropriate slide protocol for alternative recommendations.

Nexterion® spotting buffers

Introduction

SCHOTT Microarray Solutions offers a range of optimized spotting buffers that are compatible with the Nexterion® slide surfaces. Although many users printing DNA and protein microarrays opt to work with commonly used spotting buffers, such as 3X SSC and 50% DMSO (most of which work well with the Nexterion® coated substrates), SCHOTT has received many requests for fully optimized spotting buffers to significantly reduce the time and effort typically associated with spotting buffer validation. SCHOTT not only offers a standard spotting buffer that works well with most slide surfaces, but we also now offer new low evaporation spotting buffers to solve one of the most commonly observed problems associated with using aqueous spotting buffers.

The choice of the spotting buffer plays an important role in binding capacity and spot morphology. Therefore it is extremely important to fully test slides with the appropriate buffer

Nexterion® Spot

(order code: 1066029)

DNA spotting buffer

Nexterion® Spot is a robust spotting buffer that is suitable for use with most Nexterion® coated slides. The reagent is a modified phosphate buffer with a pH of 9.0 and is supplied as a 2x concentrated solution. This buffer ensures excellent spot morphology, high signal intensities, and results in medium to small spot diameters. In addition, Nexterion® Spot offers users the option of “tuning” the size of the printed spot by adding varying volumes of detergents. Specific instructions on how to modify the printing buffer are available on request, or on the SCHOTT Microarray Solutions website. Nexterion® Spot is available as a 2x concentration in 100 mL packs.

Nexterion® Spot A HD

(order code: 1168809)

Low evaporation DNA spotting buffer for aminosilane coated substrates

For many DNA microarray users, the slide surface of choice is still aminosilane despite the increasing use of “active” surface chemistries such as epoxysilane.



Although there are many commercially available spotting buffers already in use for this slide surface, many users report issues with evaporation during long print runs and spots that are too large for producing higher density arrays. To accommodate the needs of these aminosilane slide users, SCHOTT developed an optimized spotting buffer for high density printing applications on Nexterion® aminosilane coated slides.

Using Nexterion® Spot A HD spotting buffer, spots of 80 µm in diameter can be printed consistently with a pitch of 130 µm (with pins with a tip diameter of 50 µm), allowing users to produce up to 50 K arrays with conventional contact printers. The spotting buffer produces spots with excellent spot morphology and signal-to-background ratios. In addition to offering smaller spot sizes for high density arraying, Nexterion® Spot A HD also has impressive low evaporation properties for longer print runs.

Nexterion® Spot A HD has been optimized for use with Nexterion® Slide A+ and Slide AStar. Nexterion® Spot A HD is available as a 1x concentration in 100 mL packs.

Nexterion® Spot LE Kit
(order code: 1117902)

Low evaporation DNA spotting buffer for epoxysilane coated substrates
Higher density arrays usually require extended print runs that typically result in evaporation from the source plates. To enable long print runs on Nexterion® Slide E, SCHOTT developed Nexterion® Spot LE, offering users the same performance features associated with standard Nexterion® Spot, combined with low evaporation. The spot sizes are typically small enough for higher density arrays at between 60–70 µm, however sarcosyl may be added to increase spot size if required. The Nexterion® Spot LE protocol provides full details on the key factors to consider when working with this spotting buffer. SCHOTT recommends printing with split pins at a maximum pitch of 180 µm to obtain 20–25 K spot arrays. Nexterion® Spot LE kit is available as a 1x concentration in 100 mL pack with 10 mL sarcosyl solution.

Nexterion® Spot PB
(order code: 1178050)

Protein spotting buffer

Nexterion® Spot PB was developed as a protein spotting buffer and has been optimized to work with all SCHOTT's dedicated protein slide surfaces, including Nexterion® Slide P, Slide NC, Slide E and Slide H. It provides outstanding spot morphologies and contains no BSA, thus eliminating a component that may compete with low concentration probe samples. Nexterion® Spot PB typically produces spot sizes between 100–160 µm, depending on the slide surface. Nexterion® Spot PB is available as a 2x concentration in 100 mL packs.

Spot morphology and signal intensity strongly depend on following parameters

- Composition of spotting solution
- Compatibility of spotting buffer and slide surface chemistry
- Spot density/pitch
- Nature, concentration, and purity of probe molecule
- Spotting technology
- Environmental conditions
- Immobilization procedures

Blocking reagents

Nexterion® Block A Kit (order code: 100 mL 1206704, 500 mL 1206717)

Easy-to-use reagent for deactivating aminosilane coating after printing

Nexterion® Block A is a highly effective reagent for blocking aminosilane slide surfaces after microarray printing. It is ideal for use with both Nexterion® Slide A+ and Slide AStar, as well as other commercial slides. The reagent is based on the well accepted BSA blocking method, and works by blocking the reactive groups on the slide surface not occupied by the spotted DNA molecules. This significantly reduces any potential non-specific binding of the labeled target, thereby minimizing the background signals on the final microarray. The reagent is supplied as a convenient, pre-made, two-part solution that does not contain any hazardous materials.

Nexterion® Block E (order code: 100 mL 1066069, 1000 mL 1066071)

Highly effective reagent for deactivating epoxy coating after printing


Nexterion® Block E is a blocking solution optimized for Nexterion® Slide E. It reacts rapidly with residual epoxy groups in both the printed and unprinted areas of the slide surface and was developed to ensure high signal intensities with reduced non-specific background, thus increasing overall data reproducibility. SCHOTT Microarray Solutions has demonstrated that Nexterion® Block E is an extremely important component for producing high quality DNA microarrays with very good signal-to-background ratios. Nexterion® Block E is available as a 4x concentration in 100 and 1000 mL packs.

Hybridization buffers

Nexterion® Hyb (order code: 1066075)

Formamide free hybridization buffer

Nexterion® Hyb is a hybridization buffer that has been developed for optimal spot morphology, high signal intensities with reduced non-specific background, and high data reproducibility on Nexterion® slides. Nexterion® Hyb is compatible with many different surface chemistries and hybridization methods and may be used with cDNA or oligonucleotide arrays. The reagent is supplied as a ready-to-use 1x concentrated solution. By avoiding the laborious preparation of multi-component hybridization buffers, Nexterion® Hyb can save users time and effort. The components in the buffer help to stabilize the hybridization process during extended runs, and also reduce background fluorescence. Nexterion® Hyb has a low-viscosity, does not contain formamide and is recommended for applications that cannot tolerate formamide, or that require temperatures greater than 60°C. Nexterion® Hyb is available as a 2x concentration in 100 mL packs.



Nexterion® Oligo Hyb
(order code: 1116890)

Formamide hybridization buffer for oligonucleotides arrays

Nexterion® Oligo Hyb has been optimized for use with epoxy coated (Nexterion® Slide E) slides printed with oligonucleotides 20 to 70 mers long. Nexterion® Oligo Hyb is formulated with formamide. Formamide reduces the melting temperature of DNA-DNA hybrids, and permits users to reduce the hybridization temperature (42°C) while maintaining stringency. The combination of formamide and lower hybridization temperature dramatically reduces evaporation during hybridization. Nexterion® Oligo Hyb is available at a ready-to-use concentration in 100 mL packs.

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