Epoxysilane coating
NEXTERION® Slide E

Introduction
NEXTERION® Slide E is the market-leading epoxysilane coated slide from SCHOTT. The slides are manufactured from high quality borosilicate glass that has an ultra flat surface and low inherent fluorescence.

The glass is coated with a multi-purpose epoxysilane layer that will covalently bind most types of bio-molecules including amino- and non-modified DNA, RNA, and proteins. The defect-free surface features a uniform epoxysilane layer that provides a high covalent coupling efficiency together with a very low background.

The slides are easy to use, and are fully compatible with all commercially available arraying and scanning instruments.

<table>
<thead>
<tr>
<th>Type of coating</th>
<th>Immobilization method</th>
<th>Typical probes</th>
<th>Ordering information</th>
<th>Barcode option</th>
<th>Item number</th>
<th>Slides per pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxysilane 2-D surface</td>
<td>Amino-, thiol- and hydroxyl-reactive chemistry Covalent binding</td>
<td>• Amino-modified or unmodified oligos, mRNA, PCR and BACs • Proteins</td>
<td>Slide E</td>
<td>None</td>
<td>1066643</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Laser</td>
<td>1064016</td>
<td>25</td>
</tr>
</tbody>
</table>

Suitable probe types
• Amino-modified oligonucleotides 20–70 mers
• Unmodified oligonucleotides 20–70 mers
• Amino-modified PCR products
• ZIP-code oligonucleotides
• PCR products
• BAC/PACs
• L-DNA
• cDNA
• RNA
• Serum samples
• Antibodies
• Peptides
• Glycans

Key product features
• Covalent and directed binding of DNA and proteins
• Multi-purpose microarray slide coating
• Hydrophobic coating enables the spotting of high-density arrays
• Stability of the epoxy chemistry supports long print runs

Typical applications
• Transcriptional profiling
• MicroRNA
• Array-CGH
• SNP detection
• ZIP-code universal microarray
• Pathogen identification
• Subtelomere arrays
• Functional protein arrays
**Immobilization chemistry**

The diagram shows a schematic representation of an amino-modified DNA molecule coupling to NEXTERION® Slide E. Amino-modified nucleic acids bind via the terminal amino group, as well as via exocyclic amino groups of the bases, and hydroxyl groups of the sugar-phosphate backbone. Unmodified nucleic acids will bind to an epoxysilane surface with almost the same efficiency via the exocyclic amino groups of the bases, and hydroxyl groups of the backbone.

![Coating chemistry of NEXTERION® Slide E](image)

Other bio-molecules, such as proteins, bind via their exposed amine-, thiol- and hydroxyl-groups. The reaction with the epoxy group is rapid and irreversible and no additional baking or UV cross-linking steps are required. Any unreacted epoxy group may be chemically deactivated after printing to significantly reduce non-specific binding of the target molecules to the slide surface. Molecular spacers between the glass slide and the epoxy groups facilitate interactions between the printed bio-molecules and their binding partners in solution.

**Product details**

**Highly reproducible coating**

NEXTERION® Slide E is produced using an innovative proprietary process developed by SCHOTT to produce a uniform and reproducible epoxysilane coating on both sides of a high quality borosilicate glass slide. All slides are individually examined for physical defects and the presence of particles before and after coating. The epoxysilane surface is applied in tightly controlled, class-100 clean room facility, resulting in coated slides with highly uniform surface properties and low autofluorescence.

**Fully optimized surface**

NEXTERION® Slide E provides excellent spot morphologies and reproducible spot sizes with a variety of commonly used spotting buffers. The surface chemistry is robust and stable, and remains active even during very long print runs. The density of the epoxy groups in the coating is constant over the entire surface of the slides, and has been optimized to provide uniform spot size and shape and optimal binding capacity. Another important parameter, surface hydrophobicity, is also tightly controlled to optimize the performance of the slides with both contact and non-contact printers.

**Packaging and storage**

NEXTERION® Slide E are packaged in chemically stable plastic boxes and sealed under an inert atmosphere. The slides are ready-to-use from the box, and are stable for 12 months in the sealed packaging when stored at room temperature.

**Format**

The slides are available in packs of 25 slides with optional code 128 barcodes enabling automated sample tracking. The identical epoxysilane coating is also available in multi-well slide and microplate formats. For further information, refer to the section on “Multi-well formats”.

**Protocols**

Separate NEXTERION® Slide E protocols are available for DNA and protein microarray applications.
Compatible reagents

<table>
<thead>
<tr>
<th>Process step</th>
<th>SCHOTT products</th>
<th>Alternatives</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotting</td>
<td>NEXTERION® Spot</td>
<td>NEXTERION® Spot + detergents like Cetyltrimethylammonium-bromide, Triton X-100, sarcosyl, Tween or SDS with a final concentration between 0.005 and 0.05% (to increase the spot size)</td>
<td>Recommended Concentrations: Oligonucleotides: 10–20 µM PCR products: 0.1–0.5 µg/µL</td>
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<tr>
<td></td>
<td>(1066029)</td>
<td>3x SSC</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>NEXTERION® Spot LE (low evaporation buffer) (composition can be provided)</td>
<td></td>
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<tr>
<td>Chemical deacti-</td>
<td>NEXTERION® Block E</td>
<td>50 mM ethanolamine +0.1 % SDS in 0.1 M Tris, pH 9.0</td>
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<tr>
<td>vation of unre-</td>
<td>(1066071)</td>
<td>NEXTERION® Oligo Pre-Hyb (composition can be provided)</td>
<td></td>
</tr>
<tr>
<td>acted Epoxy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>groups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hybridization</td>
<td>NEXTERION® Hyb</td>
<td>3–5x SSC +0.1 % SDS</td>
<td>No formamide</td>
</tr>
<tr>
<td></td>
<td>(1066075)</td>
<td>NEXTERION® Oligo Hyb (composition can be provided)</td>
<td>Contains formamide</td>
</tr>
<tr>
<td>Washing steps</td>
<td>–</td>
<td>NEXTERION® Wash A and B (composition can be provided)</td>
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</table>

For customers with probes dissolved in DMSO, please refer to the SCHOTT NEXTERION® Internet site or contact our technical support team for further assistance.