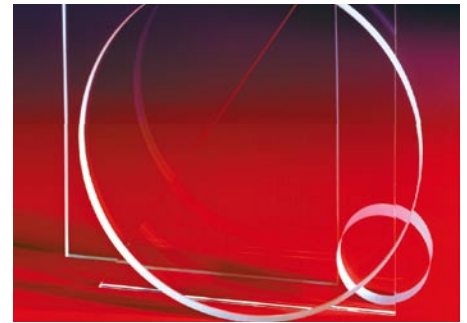


# Custom format and coating solutions



## Overview

### Summary of custom services

- Product development of new substrate coatings to meet specific applications
- Scale up and manufacture of substrates using chemistries developed by customers
- Modification of standard Nexterion® coatings to meet specific applications
- Addition of barcodes, corporate logos, identification and reference marks
- Development and production of alternative glass substrate formats
- Customizable hydrophobic patterning to create multi-well formats
- Coated substrates for diagnostic applications

## Introduction

The manufacture of special technical glasses is one of the SCHOTT group's core competencies. SCHOTT produces an extremely wide range of technical glasses, including fused silica, borosilicate, and optical glasses. In addition, SCHOTT has extensive experience in high technology glass processing, and coating technologies. SCHOTT Microarray Solutions can take full advantage of the extensive in-house facilities to offer customers, glass substrates in formats tailor-made for specific life science applications. Customization may range from simply supplying a unique barcode sequences on a standard Nexterion® slide, to a custom coated substrate for a microfluidics application. The production and quality control systems used for manufacturing custom products conform to the ISO 9001-2000 standard.

### Typical examples of custom products

- Glass bottomed microplates
- Glass plates for gel electrophoresis cassettes
- Microfluidic chip substrates
- Coated coverslips for DNA analysis, sequencing or gene expression
- Optical coated substrates for label free detection systems
- Conductive Maldi substrates
- SPR biosensors
- Small microarray substrates for use in microcentrifuge tubes

### Custom coatings

Applying thin-film coatings to glass substrates is another SCHOTT core competence. Production takes place in a class 100 clean room environment at the SCHOTT facility in Jena, Germany. Extremely high quality standards are maintained for surface finish, flatness, parallelism and absence of surface defects.

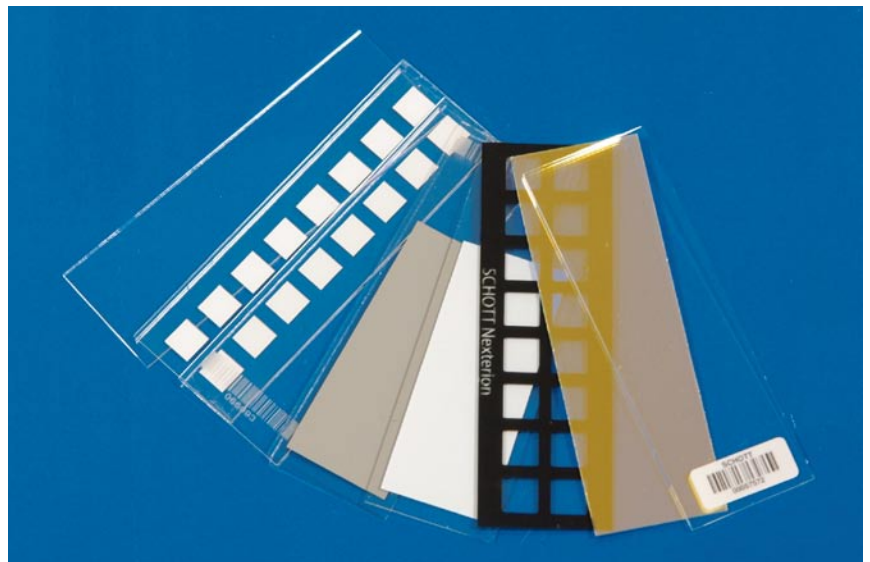
The coating technologies available include:

- Dip coating
- Chemical vapor deposition (CVD)
- Sputter deposition
- Solvent based reactor method
- Spin coating

Any of the standard Nexterion® functional coatings can be applied to just about any custom format. The coatings include:

- Aminosilane
- Aldehydesilane
- Epoxysilane
- 3-D thin film polymer-NHS ester
- Nitrocellulose
- Inorganic coatings such as gold, and other metallic coatings

SCHOTT Microarray Solutions is also able to coat glass substrates with coating chemistries developed by clients.



### Logos, fiducial marks and barcodes

SCHOTT can offer customers the opportunity to customize their slides and glass substrates with graphics, logos, company names, barcodes, reference marks, or 2-D matrix codes. These markings may be added at any location on, or within the glass surface, and may feature a combination of items, for example a company logo plus a sequential barcode.

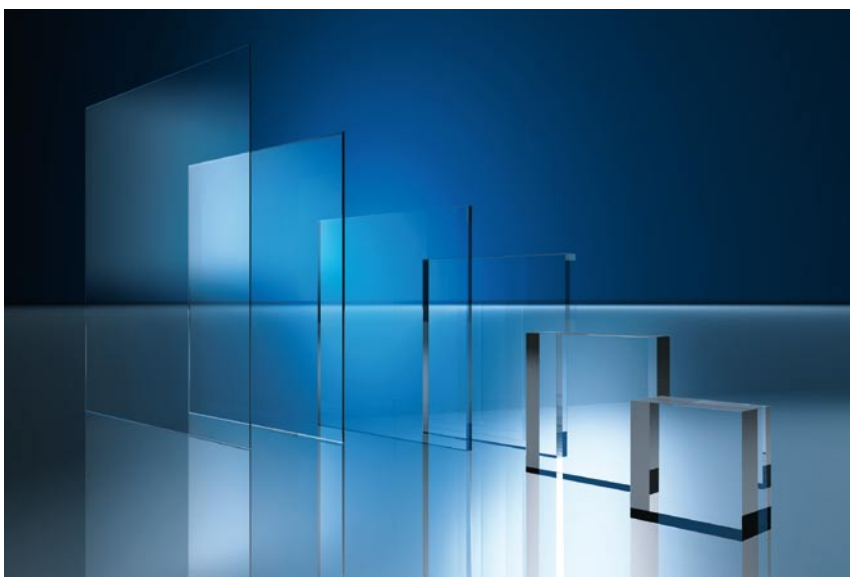


SCHOTT can offer a number of methods for marking the glass substrates. The markings are robust enough to withstand standard biomedical laboratory procedures.

- Laser-bonded foil method produces robust surface markings in black, or other colours.
- A method of printing with hydrophobic ink can be used to produce graphics, logos, as well as multi-well patterns.
- Laser ablation process produces robust marks on the surface of the glass.
- Laser-induced internal marking, introduces markings by the creation of micro-cavities within the glass.

The SCHOTT group produces several hundred different types of glass. The range of glass thicknesses available is very wide, ranging from 30  $\mu\text{m}$  up to 254 mm (depending on the glass type). Substrates may be laser cut into the final size, or partially diced to allow the later separation of individual components.

### Glass types and formats



The typical glass types used for life science products include:

- Borofloat® 33 borosilicate glass
- D263T borosilicate glass
- B270 optical glass
- BK7 optical glass
- Fused silica (quartz) wafers

Standard life science formats:

- SBS compliant microplate
- Microscope slide
- Coverslip formats in a range of shapes, dimensions, and thicknesses

Custom formats:

- Rectangular
- Square
- Round

### Advanced glass processing

Along with more traditional glass processing methods, such as cutting, grinding, polishing and water jet cutting, SCHOTT has invested heavily in new technologies, such as ultrasonically enhanced drilling for high precision circular holes 400 µm up to 3 mm. Sand blasting permits the creation of round and rectangular holes, caverns and channels, 100 µm up to 1.5 mm in glass substrates.



Please contact us to discuss how we might help you to develop your next product.

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