

# Стекланные подложки и трубки NEXTERION, 8337B, RayVolution D 99, 8347, VivoTag

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Россия +7(495)268-04-70

Казахстан +(727)345-47-04

Беларусь +(375)257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: [sqh@nt-rt.ru](mailto:sqh@nt-rt.ru) || сайт: <https://schott.nt-rt.ru/>

SCHOTT is a leading international technology group in the areas of specialty glass and glass-ceramics. With more than 130 years of outstanding development, materials and technology expertise we offer a broad portfolio of high-quality products and intelligent solutions that contribute to our customers' success.

NEXTERION® is the leading brand for cleaned and coated substrates for research, diagnostics and many other life science applications. With more than 15 years experience in the production of microarray and lab-on-a-chip solutions, we offer an extensive range of standard products and functional coatings for DNA, protein and cell applications. To meet the needs for tailor-made products we develop unique formats, materials, coatings and markings. Due to our high quality standards and volume production methods, we enable our customers to get reproducible results to address future diagnostic challenges successfully.





## Next generation substrate solutions.

### Material

The SCHOTT Group produces several hundred different types of glass. The range of glass thicknesses available is very wide, ranging from 30 µm up to 254 mm, which is depending on the glass type.

The typical glass types used for life science products include:

- BOROFLOAT® 33 borosilicate glass
- D263® borosilicate glass

If another type of material is required, we are pleased to evaluate a suitable solution for our customers.

### Dimensions and tolerances

In addition to the standard life science formats like:

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

We offer our customers substrates exactly adapted to their special application. Typical thicknesses for NEXTERION® substrates range from 0.1 mm up to 2 mm. Custom-sized products can be produced in rectangular, square or round formats. If special tolerances are required, we will be pleased to evaluate if we can meet our customers' requirements.

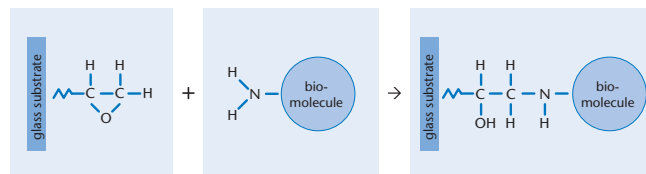
### Coatings

Applying thin-film coatings to glass substrates is another SCHOTT core competence. Production takes place in an ISO class 5 clean room environment. Extremely high quality standards are maintained for surface finish, flatness, parallelism and absence of surface defects. Any of the standard NEXTERION® functional coatings can be applied to just about any custom format.

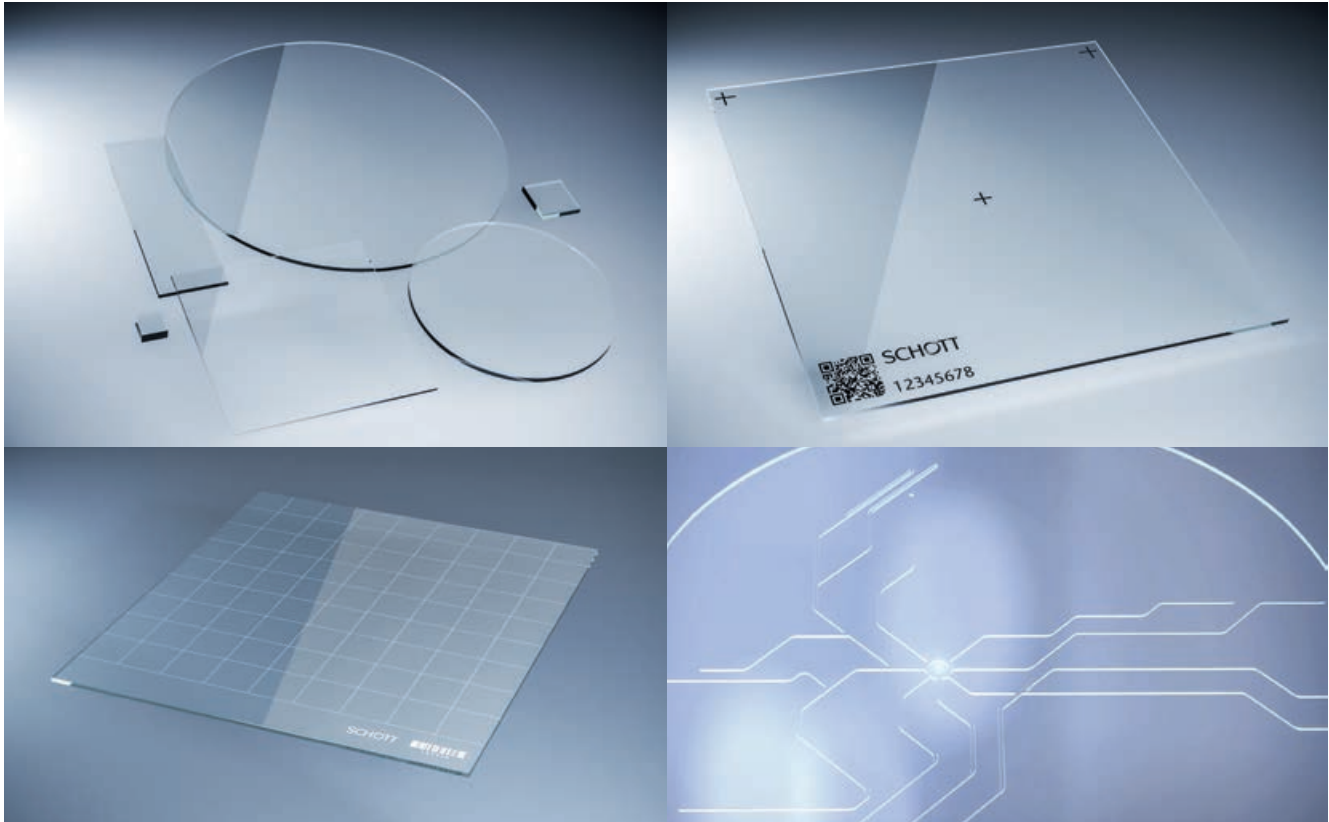
The coatings include:

- Aminosilane
- Aldehydesilane
- Epoxysilane
- 3D thin film/3D polymer (NHS ester)
- Streptavidin

NEXTERION® also offers its diagnostic partners to develop a custom coating or to coat the substrates with coating chemicals developed by clients.



NEXTERION® epoxysilane coating chemistry



### Multiplex formats

Multi-well substrates allow parallel analyses of multiple biological samples against focused subsets of probes. The multi-well format permits a number of versatile assay designs such as multiplexed experiments, side-by-side comparisons or replicate experiments to be performed.

Therefore NEXTERION® offers glass substrates partitioned by an ultra-hydrophobic patterning layer. The black patterning material creates the individual wells that act as a hydrophobic barrier preventing cross contamination between the arrays. The well pattern may also serve as a registration aid for probe deposition.

The hydrophobic patterning is available with most of the NEXTERION® standard functional coatings.

Standard formats:

- 16- or 48-well slide format
- 96- or 384-well plate format

The customisation of the hydrophobic patterning can also be offered to separate the substrate into exactly the shape and number of wells your application is requiring.

### Markings

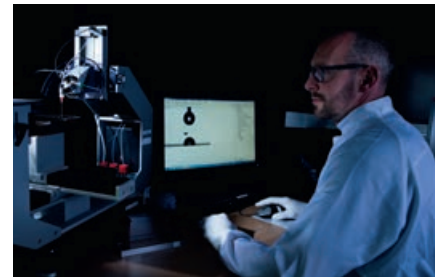
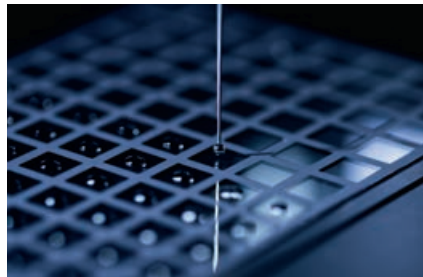
SCHOTT can offer customers the opportunity to customise their substrates with graphics, logos, company names, barcodes, reference marks, 2D matrix codes, etc. These markings may be added at any location on or within the glass surface, and may feature a combination of items, for example a company logo plus a sequential barcode. The markings are robust enough to withstand standard biomedical laboratory procedures.

### Pre-scoring

To fulfil the demand of very small substrates, SCHOTT introduced the option of standard-sized substrates pre-scored into the final chip size. This solution allows our customers a comfortable and cost-effective handling in a convenient size which allows a separation at any step of the process chain. These substrates are available with all NEXTERION® standard coatings as well as custom coatings.

### Structuring

With our extensive experience in high-technology glass processing and a variety of in-house facilities, we are pleased to support you with tailor-made solutions for microfluidic applications.



NEXTERION® – Future in your hands.

# Glass 8337B

## Technical Data

GlassType/Application	Borosilicate glass for sealing to KOVAR metal and tungsten, highly UV-transmitting Photomultiplier and UV detectors		
Physical Data (approx. value)	Coefficient of mean linear thermal expansion		
	$\alpha(20^{\circ}\text{C}; 300^{\circ}\text{C})$ (ISO 7991) .....	4.1	$10^{-6}\text{K}^{-1}$
	Transformation temperature $T_g$ (ISO 7884-8).....	440	$^{\circ}\text{C}$
	Glass temperature at viscosity $\eta$ in $\text{dPa}\cdot\text{s}$		
	$10^{13}$ (annealing point) (ISO 7884-4).....	465	$^{\circ}\text{C}$
	$10^{7.6}$ (softening point) (ISO 7884-3).....	705	$^{\circ}\text{C}$
	$10^4$ (working point) (ISO 7884-2).....	1085	$^{\circ}\text{C}$
	Stress-optical coefficient $K$ (DIN 52314).....	4.1	$10^{-6}\text{mm}^2\cdot\text{N}^{-1}$
	Density $\rho$ at $25^{\circ}\text{C}$ .....	2.22	$\text{g}\cdot\text{cm}^{-3}$
	Modulus of elasticity $E$ (Young's modulus) .....	51	$10^3\text{N}\cdot\text{mm}^{-2}$
	Poisson's ratio $\mu$ .....	0.22	
	Thermal conductivity $\lambda_w$ at $90^{\circ}\text{C}$ .....	1.0	$\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
	Log of the electric volume resistivity ( $\Omega\cdot\text{cm}$ )		
	at $250^{\circ}\text{C}$ .....	9.2	
	at $350^{\circ}\text{C}$ .....	7.5	
	$t_{k100}$ .....	315	$^{\circ}\text{C}$
	Dielectric constant $\epsilon$ for 1 MHz at $25^{\circ}\text{C}$ .....	4.7	
	Dielectric loss factor $\tan \delta$ for 1 MHz at $25^{\circ}\text{C}$ .....	22	$10^{-4}$
	Refractive index $n_d$ ( $\lambda = 587.6 \text{ nm}$ ) .....	1.476	
Chemical Resistance	Hydrolytic resistance (ISO 719) .....	Class	HGB 3
	Acid resistance (DIN 12116) .....	Class	S 4
	Alkali resistance (ISO 695) .....	Class	A 3
	The heavy metal content for the elements lead, cadmium, mercury and hexavalent chromium is below 100 ppm		

# Glass 8347

## Technical Data

GlassType/Application	Borosilicate glass 3.3 acc. to ISO 3585, chemically and thermally highly resistant. Highly UV-transmitting.		
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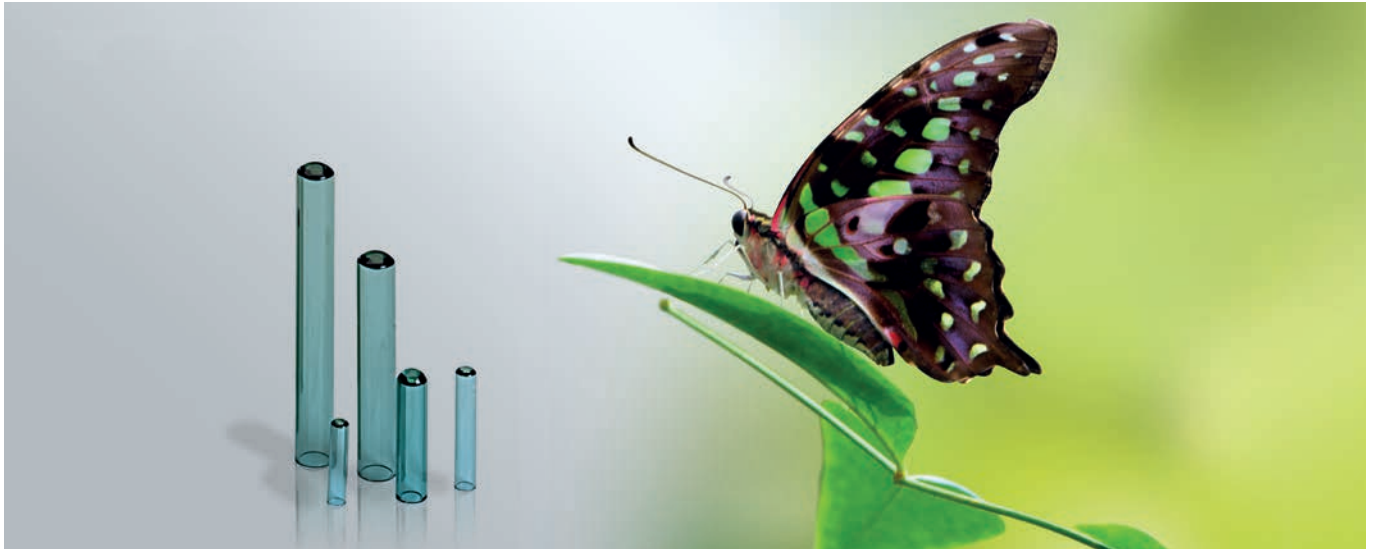
Physical Data (approx. value)	Coefficient of mean linear thermal expansion		
	$\alpha(20^{\circ}\text{C}; 300^{\circ}\text{C})$ (ISO 7991) .....	3.3	$10^{-6}\text{K}^{-1}$
	Transformation temperature $T_g$ (ISO 7884-8).....	525	$^{\circ}\text{C}$
	Glass temperature at viscosity $\eta$ in $\text{dPa}\cdot\text{s}$		
	$10^{13}$ (annealing point) (ISO 7884-4).....	560	$^{\circ}\text{C}$
	$10^{7.6}$ (softening point) (ISO 7884-3).....	825	$^{\circ}\text{C}$
	$10^4$ (working point) (ISO 7884-2).....	1260	$^{\circ}\text{C}$
	Stress-optical coefficient $K$ (DIN 52314).....	4.0	$10^{-6}\text{mm}^2\cdot\text{N}^{-1}$
	Density $\rho$ at $25^{\circ}\text{C}$ .....	2.23	$\text{g}\cdot\text{cm}^{-3}$
	Modulus of elasticity $E$ (Young's modulus) .....	63	$10^3\text{N}\cdot\text{mm}^{-2}$
	Poisson's ratio $\mu$ .....	0.2	
	Thermal conductivity $\lambda_w$ at $90^{\circ}\text{C}$ .....	1.2	$\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
	Log of the electric volume resistivity ( $\Omega\cdot\text{cm}$ )		
	at $250^{\circ}\text{C}$ .....	8.0	
	at $350^{\circ}\text{C}$ .....	6.5	
	$t_{k100}$ .....	250	$^{\circ}\text{C}$
Dielectric constant $\epsilon$ for 1 MHz at $25^{\circ}\text{C}$ .....	4.6		
Dielectric loss factor $\tan \delta$ for 1 MHz at $25^{\circ}\text{C}$ .....	37	$10^{-4}$	
Refractive index $n_d$ ( $\lambda = 587.6 \text{ nm}$ ) .....	1.473		

Chemical Resistance	Hydrolytic resistance (ISO 719) .....	Class	HGB 1
	Acid resistance (DIN 12116) .....	Class	S 1
	Alkali resistance (ISO 695) .....	Class	A 2

The heavy metal content for the elements lead, cadmium, mercury and hexavalent chromium is below 100 ppm

# SCHOTT VivoTag® Transponder Glass Tubes

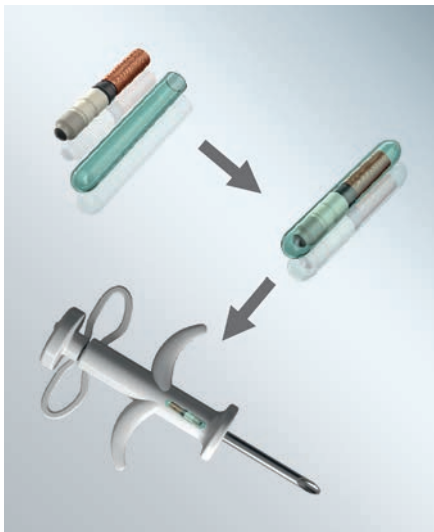
Superior biocompatibility for implantable animal RFID tags



## Product Information

SCHOTT VivoTag® glass vials (previously known as SCHOTT 8625 glass), have been the material of choice for animal identification and tracking applications for decades.

SCHOTT VivoTag® glass tubes reliably encapsulate sensitive RFID chips for both implantable and non-implantable RFID transponders. As an inert material with consistent chemical stability inside the body, the glass tube enables the required long-term functionality of the electronic components.



## Advantages

### Biocompatible

SCHOTT's VivoTag® transponder glass has been successfully tested for biocompatibility (cytotoxicity, hemo-compatibility) in animal applications, which means the glass causes little to no immune reaction, such as inflammatory response, toxic or mutagenic effects, allergies or infections, when subcutaneously injected or implanted.

### Proven track record

Also known as 8625 glass, it has been successfully used in animal identification for decades, making it the most proven material for implantable RFID applications on the market.

### Small sizes

VivoTag® transponder glass tubes are available in very small dimensions, down to as little as 1.25mm outer diameter.

# SCHOTT VivoTag® Transponder Glass Tubes

Superior biocompatibility for implantable animal RFID tags



## Applications

Due to their superior biocompatibility, SCHOTT VivoTag® transponder glass tubes are particularly suitable for animal identification and tracking as enclosures for implantable RFID transponders and bolus transponders.



Features/ Specification	SCHOTT VivoTag® (8625)
Properties	Biocompatibility successfully tested in animal applications
Supply format	Glass vial, open on one side
Outer diameter	from 1.25 to 4.0 mm
Length	from 7 to 50 mm (depending on length-diameter ratio)
Sealing method	The vials are made from IR-absorbent glass which means the open end can be sealed in a clean room atmosphere using laser or infrared (no open flame needed).

## About SCHOTT

SCHOTT is a leading international technology group in the areas of specialty glass and glass-ceramics with a workforce of 15,400 employees in 35 countries. With more than 130 years of experience in glass manufacturing, SCHOTT has outstanding development, materials and technology expertise and offers a broad portfolio of high-quality products and intelligent solutions.

# Glass 8405

## Technical Data

Glass Type/Application	Sodium-potassium-barium-silicate glass Highly UV-transmitting Used as envelope for germicidal lamps (low-pressure mercury vapour discharge lamps) and for UV detectors		
Physical Data (approx. value)	Coefficient of mean linear thermal expansion		
	$\alpha(20^{\circ}\text{C}; 300^{\circ}\text{C})$ (ISO 7991) .....	9,7	$10^{-6}\text{K}^{-1}$
	Transformation temperature $T_g$ (ISO 7884-8).....	460	$^{\circ}\text{C}$
	Glass temperature at viscosity $\eta$ in $\text{dPa}\cdot\text{s}$		
	$10^{13}$ (annealing point) (ISO 7884-4).....	470	$^{\circ}\text{C}$
	$10^{7.6}$ (softening point) (ISO 7884-3).....	665	$^{\circ}\text{C}$
	$10^4$ (working point) (ISO 7884-2).....	1000	$^{\circ}\text{C}$
	Stress-optical coefficient $K$ (DIN 52314).....	2,8	$10^{-6}\text{mm}^2\cdot\text{N}^{-1}$
	Density $\rho$ at $25^{\circ}\text{C}$ .....	2,51	$\text{g}\cdot\text{cm}^{-3}$
	Modulus of elasticity $E$ (Young's modulus) .....	65	$10^3\text{N}\cdot\text{mm}^{-2}$
	Poisson's ratio $\mu$ .....	0,21	
	Thermal conductivity $\lambda_w$ at $90^{\circ}\text{C}$ .....	1,0	$\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$
	Log of the electric volume resistivity ( $\Omega\cdot\text{cm}$ )		
	at $250^{\circ}\text{C}$ .....	8,5	
	at $350^{\circ}\text{C}$ .....	6,9	
	$t_{k100}$ .....	280	$^{\circ}\text{C}$
	Dielectric constant $\varepsilon$ for 1 MHz at $25^{\circ}\text{C}$ .....	6,5	
	Dielectric loss factor $\tan \delta$ for 1 MHz at $25^{\circ}\text{C}$ .....	45	$10^{-4}$
	Refractive index $n_d$ ( $\lambda = 587.6 \text{ nm}$ ) .....	1,505	
	UV transmission (WT = 1 mm, $\lambda = 254 \text{ nm}$ ) .....	> 75	%
Chemical Resistance	Hydrolytic resistance (ISO 719) .....		
	Acid resistance (DIN 12116) .....	Class	HGB 5
	Alkali resistance (ISO 695) .....	Class	S 3
		Class	A 2
	The heavy metal content for the elements lead, cadmium, mercury and hexavalent chromium is below 100 ppm		

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Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: [sqh@nt-rt.ru](mailto:sqh@nt-rt.ru) || сайт: <https://schott.nt-rt.ru/>