Elevating Automated Workflows and Digital Pathology Performance with High-Quality Cover Glass

Background

The quality of cover glass plays an integral role in achieving precision and reliability in microscopy and digital pathology. KT™ Premium Koverglass, made from SCHOTT's D 263® M glass, has been rigorously engineered and tested to meet and exceed ISO 8255-1 standards, setting a new benchmark for cover glass performance.

SCHOTT's Cover Glass vs. ISO 8255-1 Standards

To ensure unparalleled optical performance, cover glass must adhere to stringent quality requirements. Testing completed by SCHOTT compares key specifications of SCHOTT's D 263® M glass with ISO 8255-1 standards.

Table 1: SCHOTT Test Findings

Parameter	ISO 8255-1 Requirement	Schott D 263® M
Refractive index (n_e)	1.5255 +/- 0.0015	1.5255 +/-0.0015
Abbe-value (v_e)	56 (+/-2)	55
Thickness #1 (mm)	0.17 (+0, -0.04)	0.145 +/-0.015
Hydrolytic Resistance (DIN ISO 719)		HGB-1 (20µg/g)

SCHOTT D 263® M consistently surpasses the requirements of ISO 8255-1.

Digital Pathology

The clarity of images is paramount for accurate diagnoses and research. By exceeding ISO standards, SCHOTT's cover glass minimizes optical distortion, ensuring high-resolution imaging and accurate light transmission. This results in:

- Enhanced Clarity: Clear images enable pathologists to make confident assessments.
- Improved Workflow Efficiency: Reduces the need for repeat imaging or adjustments.
- Support for Advanced Imaging Techniques: High-quality glass enables compatibility with AI systems.

Storage and Archiving

SCHOTT's D 263® M cover glass has been rigorously tested to meet long-term storage demands under varying storage conditions. Its hydrolytic resistance, rated at medical-grade HGB-1 (see Table 1), provides exceptional resistance to moisture-induced deterioration, maintaining slide integrity and preserving diagnostic clarity, crucial for archival requirements.

Quality Control

Cover glasses produced by Knittel Glass are tested at the time of production – looking for broken coverslips or cover glasses stuck together - using a globally accepted automated coverslipper. Since 2017, random samples of final production lots, totaling over 764,504 cover glasses yielded just 382 (0.05%) broken coverslips and 994 (0.13%) cover glasses stuck together. Knittel's stringent quality control specifications ensure that only batches demonstrating zero breakage and sticking are approved for release from the facility

Table 2: Knittel Glass Quality Testing

Tested	Cover Glass Broken	Cover Glass Stuck Together
764,504	382	994
	0.05%	0.13%

Effortless Automation

KT™ Premium Koverglass supports seamless integration with automated systems, ideal for high-throughput laboratories requiring minimal manual intervention. Designed to work effortlessly with globally available coverslippers, the glass ensures:

- Jam-Free Operation: Smooth surfaces and precise dimensions prevent interruptions.
- Stick-Free Performance: Reduces downtime and contamination risks.
- Reliability: Over 99.9% of production exceeds stringent quality checks, ensuring dependability.

Conclusion

KT™ Premium Koverglass represents the pinnacle of precision and reliability, surpassing ISO 8255-1 standards and delivering exceptional performance for automated workflows and digital pathology. By investing in superior cover glass, laboratories can achieve vibrant imaging combined with a seamless workflow.

1. References – SCHOTT white paper - https://www.schott.com/en-gb/products/d-263-p1000318/technical-details