Vol. VI, No. 1, January 2012

New BG60 & BG61 Blue Filter Glasses

SCHOTT has been offering blue filter glasses and recently added two new types featuring significant advantages. The two new glass types BG60 and BG61 that have been added to SCHOTT's existing range of glasses have excellent climatic resistance, good bending strength, particularly suitable for thin substrates, and a broader pass band for simplified coating compared to other glass types from this series.

BG60 & BG61 as new optical filter glasses recently added to the BG-series

Glasses from the BG-series are used for IR cut filters that are especially used for all sorts of digital cameras including mobile devices, as well as night vision imaging systems for IR light suppression.

BG60 compared to BG61 is stronger in blocking wavelengths around 750 nm (the $\tau 50$ @ 0.3 mm thickness lies at 633 nm), while BG61 shows the broadest pass band for this kind of glasses on the market (the $\tau 50$ @ 0.3 mm thickness lies at 644 nm). In addition, a very high climatic resistance of both glasses has been proven: coated substrates exceed a 1000 h 85°C/85% RH humidity test.

BG 60 & BG 61 will be offered from a continuous glass production, providing a high degree of repeatability and consistent transmission (wavelength characteristic) from melt to melt. BG60 & BG61 glass types will be available as matt plate, and polished or coated substrate.

For further information please refer to our data sheets or contact us at info.optics@schott.com

SCHOTT introduces new revolutionary thin glass material MEMpax®

Perfectly suited for the Semiconductor & MEMS industry

SCHOTT launches a new significantly thinner glass version of borosilicate glass. The new glass variant is produced in a continuous down-draw-process and offers tremendous customer benefits in terms of quality and effort but has similar properties as Borofloat® 33.

The material with the brand name MEMpax® has been developed and optimized to meet the specific requirements of the Semiconductor Industry for the strongly growing market of MEMS sensors in which it is used in very thin glass wafer formats for encapsulation processes. Many other semiconductor wafer level packaging (WLP) applications can be realized as well.

MEMpax® has outstanding surface properties and is readily available in state-of-the-art thicknesses (see table below) **WITHOUT** any additional need for grinding or polishing. The down-draw production process is yielding very thin sheets with pristine surface quality.

Samples are available immediately and may be ordered via your local SCHOTT Sales contact. Volume production will commence in 2012. MEMpax® will also be presented at Photonics West 2012 – please visit us at booth 1601. We are looking forward to supporting your application with this new and exciting material.

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Most prominent properties of MEMpax®:

- Produced in a down-draw-process
- Excellent fire polished surface quality
- Wide thickness range from 0.1 – 1.1 mm
- Available in 6”, 8” and 12” wafers
- CTE matching to Silicon
- Well suited for anodic bonding

Apochromatic correction with N-PK52A

Re-launched N-PK52A

For an ambitious optical design the apochromatic correction is an essential factor. The apochromatic lens design requires glasses with high difference in the Abbe number (~ 30) and similar dispersion number (Pg,F).

Obviously, the need of a high difference in the Abbe number necessitates glass types in the Abbe diagram like Phosphor crown (PK) and Fluoro Crown (FK).

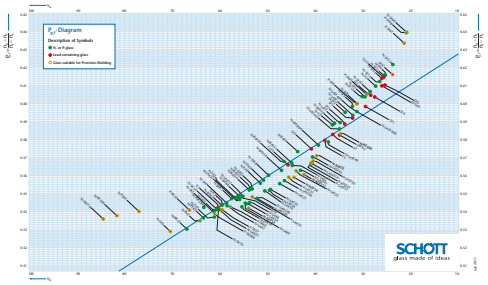

Fig. 1: Pg, F Diagramm

One of the most important fluoro-phosphate glasses is N-PK52A, which enables very sophisticated optical designs, which emphasize low haze and low fluorescence.

Low haze meaning a low number of small particles with a size of the particles smaller than 5 micron (so called haze) that are due to its small size difficult to detect and to measure.

The technology group at SCHOTT has realized a development offensive within the last months and is now able to provide a new enhanced N-PK52A with a very low haze.

Additionally, N-PK52A shows a very low density, which is very important for the weight of lenses in cameras with an autofocus. Also for applications in microscopes, N-PK52A is well suited since the low inherent fluorescence enables optical designs for modern biosciences.

The outstanding properties of N-PK52A are:

- Low Density → low weight of lenses for autofocus cameras
- Low Haze → great benefit for high sophisticated optical designs
- Low Fluorescence → important for optical designs for modern biosciences
- Near-net-shape supply forms → Pressings and Cut Blanks

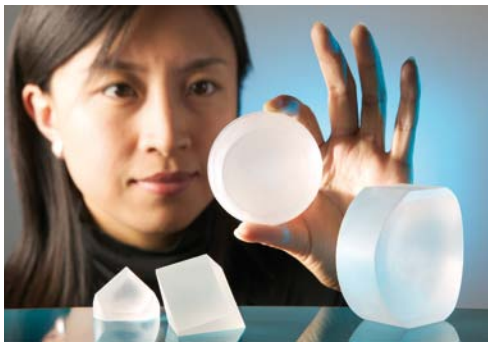

Fig. 2: Near-net-shape supply forms

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SCHOTT North America, Inc. inaugurates Chalcogenide Glass Production in the United States:

New U.S. Production Capability for IR Material

To showcase the US chalcogenide production, SCHOTT's Duryea facility hosted an inaugural customer open house to which Dr. Marita Paasch, Vice President of SCHOTT Advanced Optics, Dr. Heather Rayle, Vice President and General Manager of SCHOTT Advanced Optics at SCHOTT North America, Inc., and Scott Custer, Major General, US Air Force (Ret), and now head of SCHOTT Defense, invited numerous partners and customers.

Together with The Optical Society of America (OSA), SCHOTT hosted a seminar on site, also available online as a live webinar. More than 400 participiants worldwide and appr. 40 attendees on site followed Dr. Kevin P. Thompson on his speech: 'Optical Design in the Infrared: The world has changed – new materials, methods, and solutions to address new challenges.' Dr. Thompson is the Group Director, Research and Development for Optics at Synopsis, Inc.

In addition to the webinar, the open house held several interesting parts: a presentation given by Dr. Nathan Carlie, Research & Development Scientist for SCHOTT's North American R&D center on the trends and expected developments in the market of IR materials; a facility tour giving a comprehensive overview of the competences in Duryea; and the official ribbon cutting of the chalcogenide melting facility.

SCHOTT's chalcogenide glass is ideal for defense and commercial security and sensing applications such as night vision and thermal imaging. It provides high transmission quality across a wide range of the IR spectrum, from the near-infrared (NIR) to long-wavelength infrared (LWIR) regions. Like many of SCHOTT's glass applications, chalcogenide glass has a broad transparency range and consistent optical behavior over a wide temperature range, assuring it can withstand extreme environments without defocusing.

Adding the new chalcogenide glass line and fabrication technologies to the Duryea facility will provide customers with a family of IR glasses to meet specific requirements for various applications. "SCHOTT is pleased to be able to offer a high quality, domestically produced source of chalcogenide glass components to serve our customers in the U.S. defense, security and commercial thermal imaging markets," added Dr. Heather Rayle at the end of the event.

Official ribbon cutting in Duryea

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SPIE and SCHOTT launch new lecture program for "Student Chapters"

A new SPIE-SCHOTT lecture program is bringing valuable work-world insights as well as field-proven technical knowledge to "SPIE Student Chapter" members. The series launched in October at the University of Rochester with a lecture on optical glass by Michelle deCastro, a sales manager and former applications developer at SCHOTT North America Advanced Optics Division.

"The public lecture was informational, and the discussion that followed over lunch was great," said Univ. of Rochester Chapter Member Daniel Christensen after deCastro's talk. "Having someone from SCHOTT give us her perspective was a great resource for real-world advice."

"We are very pleased to be a part of this lecture program as a way to express SCHOTT's motto, 'Your Partner for Excellence in Optics'," said Dr. Marita Paasch, Vice President of SCHOTT Advanced Optics. "With our contribution to the "SPIE Student Chapters", we are engaging with future potential employees, customers, or partners and sharing the expertise and excellence in optics we have accumulated over the last 125 years. We are constantly expanding our portfolio to reflect current market developments and the needs of our customers. This requires exchange and close communication with our partners, and the cooperation with the "SPIE Student Chapter" is a perfect opportunity benefiting both parties."

"We are delighted that SCHOTT has taken the visionary step of sponsoring these lectures," said SPIE CEO Eugene Arthurs. "The inspiration that working professionals provide to students is invaluable. Even beyond sharing their insights and serving as mentors and role models, the lecturers create a pathway of communication between industry and academia that informs the direction of each. We commend SCHOTT for this demonstration of their dedication to helping to ensure a well-qualified workforce for the future."

"Student Chapters" are groups of students studying optics and photonics at universities that have formed with the support of SPIE, an organization to support their own professional development efforts. SPIE's main support is to match the "Student Chapters" with relevant speakers. This year's series will be offered to chapters on the U.S. East Coast.

Among topics are:
- Infrared glass and its applications
- History of glass
- Laser glass and its applications.

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SPECTARIS Honorary Bear for SCHOTT Employee for outstanding engagement

Exempt for optical glasses from EU RoHS Directive obtained

At the SPECTARIS' Imaging + Phototechnik annual meeting Dr. Peter Hartmann, Director Market and Customer Relations of SCHOTT AG Advanced Optics, Germany, and an expert in the fields of optical glass and the zero expansion glass ceramic ZERODUR®, was awarded with a Honorary Bear. The prize is named after the mascot of Berlin, the capitol of Germany, where SPECTARIS has its domicile and is awarded every two years since 2006. SPECTARIS is the German industry association for the high-tech medium-sized business sector and representative body in the areas of medical technology, optical technologies and analytical, biological, laboratory, and ophthalmic devices. These different industry sectors are characterized by innovation and growth with a strong workforce of about 250,000 people.

Dr. Tobias Weiler, executive director of SPECTARIS, and Dr. Peter Hartmann, SCHOTT Advanced Optics

The prize was given out to honor outstanding personalities of the member companies for extraordinary effort that exceeded the regular input and is beneficial for the entire industry. Dr. Peter Hartmann has played a decisive role in obtaining an exemption of the EU directive RoHS for indispensable optical glass types and engages himself in the objective to get optical materials generally out of the scope of RoHS. A good and convincing reason to award him with the bear. Congratulations!

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Management System of all Plants is globally certified


LRQA

CERTIFICATE OF APPROVAL

SCHOTT AG
Business Segment AOO
Hüttenstraße 1, 31073 Grünenplan
Germany

DIN EN ISO 9001:2008; DIN EN 14001:2009

Application engineering, manufacturing and coating of optical special glass and components.

With 125 years of glass melting experience, highest level of quality across the product portfolio and a sustainable production that has the highest priority for the entire Advanced Optics team. For that the fulfillment of the standards for Quality Management and Environmental Management such as ISO9001:2008 and ISO14001:2009 are an essential prerequisite.

To optimize the fulfillment of such standards Advanced Optics has decided in 2010 to cooperate with an exclusive auditor and registrar to continuously improve the production system of the Optics department. With Lloyds Register Quality Assurance (LRQA) a partner with high reputation, a global footprint, highly sophisticated requirements on management systems and defined standards perfectly suiting to the self-image of Advanced Optics was found.

The organizational and technical activities of the processes of the global production and innovation network have formed the scope of the audits. In November 2011, after an intensive audit schedule, one global integrated certificate for both, the Management System on Quality and Environment could be acknowledged to Advanced Optics for the first time. Kristian Eichgruen, head of the global quality management assurance commented: "If our customers get deliveries from more than one plant, we will now provide only this one certificate." Previously 12 local certificates of 5 different registrars had been provided, "but with that one certificate the consistency of the quality across all sites is being shown emphasizing the priority of high quality" Eichgruen adds after the successful audit.

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SCHOTT at Photonics West 2012

SCHOTT will be one of the exhibitors at this year's BiOS and Photonics West shows. Besides presenting products and news at the booth, experts from SCHOTT in Germany and the United States will be conducting product demos during the show and a short course will be held. Please visit us at BiOS, booth #8904; at Photonics West, booth #1601 and the Christopher Ries exhibit, booth #1236 (all in south hall).

Product Spotlight Demonstrations:

Tuesday, January 24th: 10:30 am – South Hall ABC, Demo Area 1
New climatic resistant BG60/BG61 blue filter glass for IR cut filter used in digital cameras
Dr. Steffen Reichel, SCHOTT AG

Tuesday, January 24th: 11:30 am – South Hall ABC, Demo Area 1
Chalcogenide components for short to long wave infrared applications: SCHOTT now produces materials and components in the US
Dr. Nathan Carlie, SCHOTT North America, Inc.

Tuesday, January 24th: 10:30 am – North Hall D, Demo Area 2
SCHOTT is introducing PURAVIS™ eco-friendly glass optical fibers
Karin Holst, SCHOTT AG

Tuesday, January 24th: 12:30 pm – North Hall D, Demo Area 2
New developments on ZERODUR®
Dr. Peter Hartmann, SCHOTT AG

Wednesday, January 25th: 1:30 pm – South Hall ABC, Demo Area 1
Ready to use optical components and glass filters with anti-reflective and highly reflective coatings
Dr. Steffen Reichel, SCHOTT AG

Wednesday, January 25th: 4:30pm – South Hall ABC, Demo Area 1
Hardest coating from SCHOTT
Dr. Steffen Reichel, SCHOTT AG

Short Course:

Tuesday, January 24th: 1:30 pm – 5:30 pm
SC1013 – Choosing the Correct Optical Filter for your Application
Dr. Steffen Reichel, SCHOTT AG

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Upcoming SCHOTT Events

Here we are listing the events where "Advanced Optics" proactively attends as an exhibitor, speaker or has an active part such as "chair of technical conferences," etc.

SPIE BiOS – Booth #8904
San Francisco, CA
January 21 – 22, 2012

SPIE Photonics West 2012 – Booth #1601
San Francisco, CA
January 24 – 26, 2012

SPIE Photonics West 2012
Christopher Ries Booth #1236
San Francisco, CA
January 24 – 26, 2012

Medtec Stuttgart
Stuttgart, Germany
March 13 – 15, 2012

Technologies HI-TECH 2012
Tel Aviv, Israel
March 14 – 15, 2012

FINETECH Japan
Tokyo, Japan
April 11 – 13, 2012

SPIE Defense, Security & Sensing
Baltimore, Maryland
April 23 – 27, 2012

Lens Expo 2012
Yokohama, Japan
April 25 – 27, 2012

CLEO – Stand 2107
San Jose, CA
May 8 – 10, 2012

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