Our Service to your Business

Material Solutions

Schott Research

Since Schott’s founding, 125 years ago, research and development have been top priorities. Currently, some 200 employees work at „Otto-Schott-Forschungszentrum“ (Otto Schott Research Center), Europe’s most advanced research center for special glass. The research & development group is a service division for the Schott Group’s 40 production facilities worldwide, and it concentrates its activities on application-oriented problems.

R & D Services - Material Solutions

Product innovations are frequently enabled by advances in materials. The materials you are using in your product are likely to be crucial for its level in functional performance, quality and reliability, and – last but not least - the total system cost. High-performance glasses and glass ceramics from Schott are valued to provide a source of competitive advantage to our customers.

You can benefit from the knowledge and experience of Schott’s scientists, engineers and technicians with access to unique cutting-edge tools. We will be happy to provide solutions to your request. Our service offer ranges from customer specific material development, to contract manufacturing of lab to pilot scale quantities. We design and fabricate optical and optoelectronic components, and provide consultancy on material processing, as well technical studies in the fields of our expertise.

Main contact

Development Materials and Components
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# Our Service Offer

## Contract development of materials

- new glasses, glass ceramics on customer specification

## Manufacturing of materials in small quantities

- volumes 0,1 to 1000 kg
- form factor: bulk incl. size/surface to spec, fiber, tube, rod, powder, ribbon, . . .
- certificate on composition

## Tailored components

- optical functionalities: fiber, refractive, diffractive . . .
  (incl. design and characterization)
- bonded components

## Consulting

On material questions relevant to your business (raw materials, transfer-to-production, process optimization, literature and IP analysis, technical studies, . . .)
Contract Development of Materials

Your project will be handled by developers which have experienced Schott’s unique environment of scientific excellence in daily contact with industrial manufacturing reality.

Glass and Glass Ceramics Development Service Offers

- Development and redesign according to specifications for different applications
  - optical
  - technical
  - powders
- active positioning of intellectual properties
- Transfer to production
- Application support

Competencies and Tools

- Most extensive data bases on composition—properties
- Certified material property characterization (DIN EN ISO/IEC 170225)
- efficient Design-of-Experiment (DoE) approach
- cutting-edge scientific tools
- Material data based process design and optimization in lab and production environment
Manufacturing of Materials in small Quantities

You will benefit from many years of our glass makers’ experience in melting a uniquely broad range of optical and technical glasses, as well as glass ceramics. Your materials will be melted in small to medium quantities in an environment which guarantees highest standards of quality management, standardization and reproducibility.

Melting

- Lab scale: Volumes of 25 ml to 2,5 l
- Pilot Lab: up to 100 l
- Form Factor
  - bulk with specific form factor/surface specifications
  - fiber, tube, rod, powder, ribbon, ...
- Crucibles: SiO₂, Al₂O₃, PtIr, PtRh, Ir
- Temperatures: up to 2100°C
- Redox control over 10 orders of magnitude
- Bubble diagnostics
- Thermodynamics and chemical process simulation

Thermal post treatment

- Ceramization / sintering
- Controlled atmosphere (gas, vacuum)
- temperature up to 1500°C
Tailored Components

Our success is built on scientific and technological excellence in materials. We invite you to discover our capabilities in designing, manufacturing and characterizing tailored components including a strong focus on process development.

Electro-optical properties
- design, realization and characterization

- Simulation
  ray-tracing, wave-optics, laser optics,
  light scattering, rigorous vector theory, ...

- Design
  utilize measurements and simulation
  to design components/system

- Characterization
  Lab for electro-optical measurement
  LEDs, Laser, DOEs, fiber, micro-optics ...

Post processing

- Fiber drawing
- Ion exchange
  - to enhance mechanical strength
  - to change optically properties locally
- Bonding / shaping
  - Thermally resistant bonds (inorganic, organic)
  - High strength bonding
Consulting

Our expertise generating results for you

- Together with you, our customer, we define goals and generate results.
- State-of-the-art knowledge and broad experience of Schott’s scientists, engineers and technicians with access to unique cutting-edge tools will be efficiently used to address your needs.

Areas of consultancy

- Research and development of inorganic oxide high tech materials, esp. glass and glass ceramics
- Purchase & procurement of raw materials, materials, material processing equipment, material characterization equipment
- Production of glass or glass ceramics
- Post processing of glasses and glass ceramics, crystals
- Quality control
- Technical studies incl. market, intellectual property, and literature research
- Interaction of SCHOTT materials with customer processes