

precision. nothing less.



# ilis gmbh

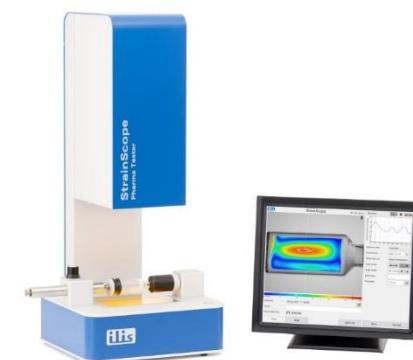


- Founded 1998, based in Erlangen (Germany) since 2001
- Competencies & products  
imaging polarimetry (StrainScope®), optical spectroscopy (Chroma™),  
glass recipe calculation (BatchMaker®)
- Target markets  
glass manufacturing & processing, pharmaceutical industry, optics & photonics,  
semiconductor industry
- Applications  
container glass & tableware, tube & laboratory glass, pharmaceutical packaging,  
optical materials and components, semiconductor substrates, transparent plastics

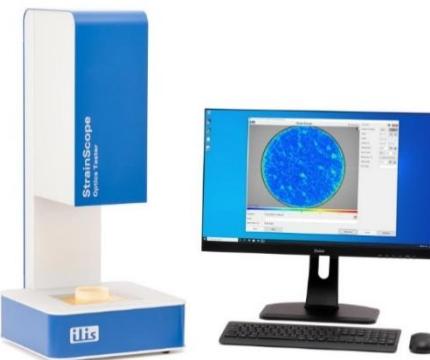
# StrainScope® digital imaging polarimeters



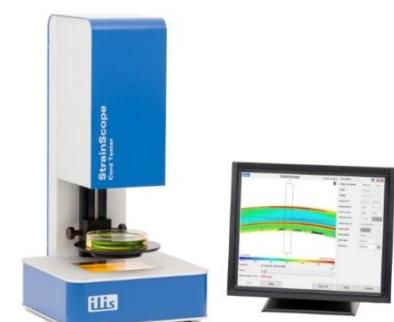
**StrainScope® Annealing Tester**  
container glass (annealing stress)



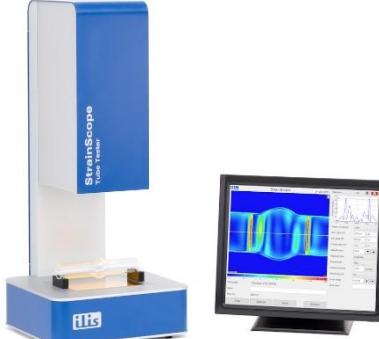
**StrainScope® Pharma Tester**  
pharmaceutical glass packaging



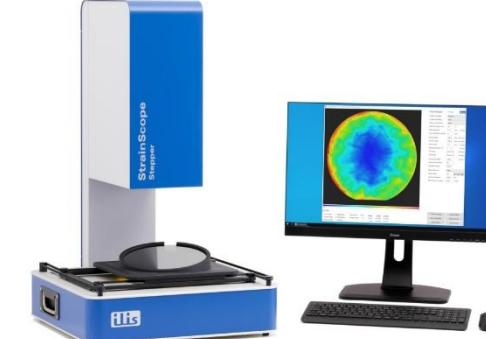
**StrainScope® Optics Tester**  
optical materials and components



**StrainScope® Cord Tester**  
container glass (glass homogeneity)

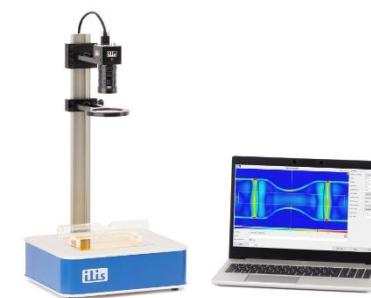


**StrainScope® Tube Tester**  
tube glass and tubular products



**StrainScope® Stepper**  
large-format optical and crystalline  
materials and components

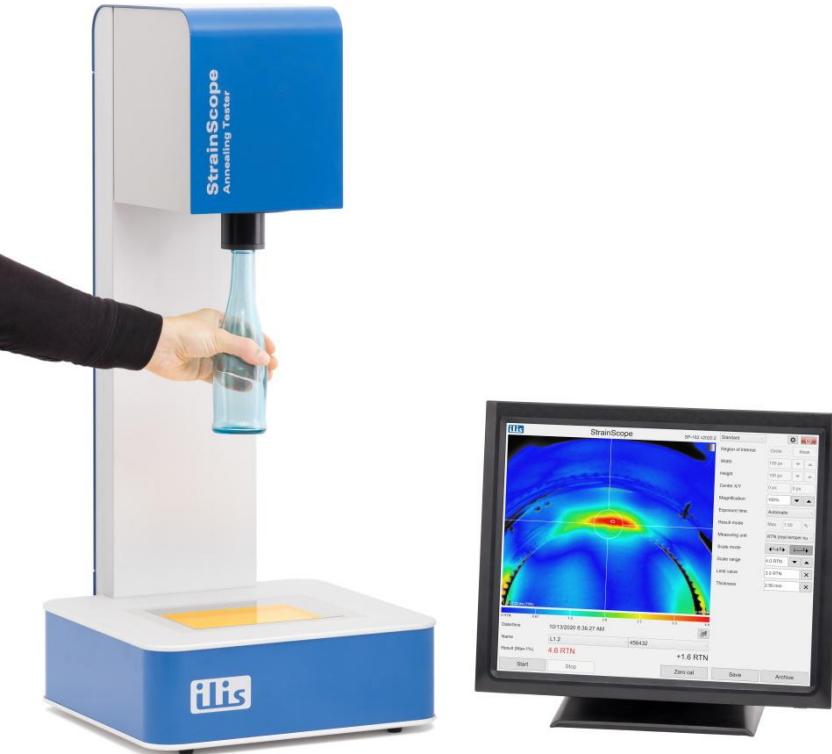
- Accurate and reproducible measurement of the stress distribution in real time
- Various variants, specially adapted to the respective measurement task



**StrainScope® Flex**  
R&D and process automation

# StrainScope® Annealing Tester

## container glass (annealing stress)

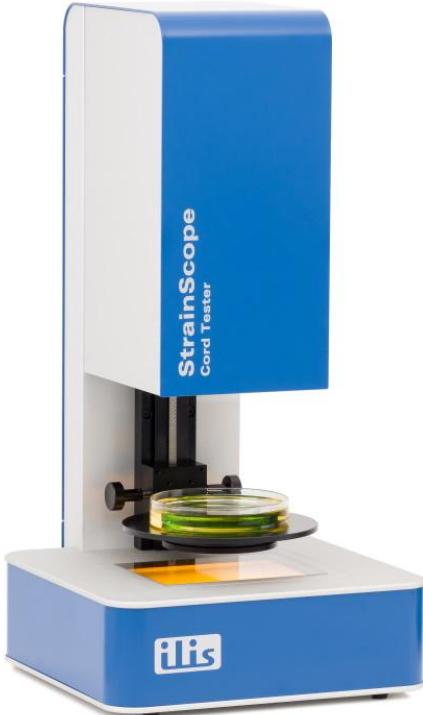


- Digital replacement for conventional polariscopes and polarimeters
- Easy and fast operation
- Monitoring of residual stresses in the base area of bottles and jars
- Optimization of the annealing process (cost reduction by energy saving)



# StrainScope® Cord Tester

## container glass (glass homogeneity)

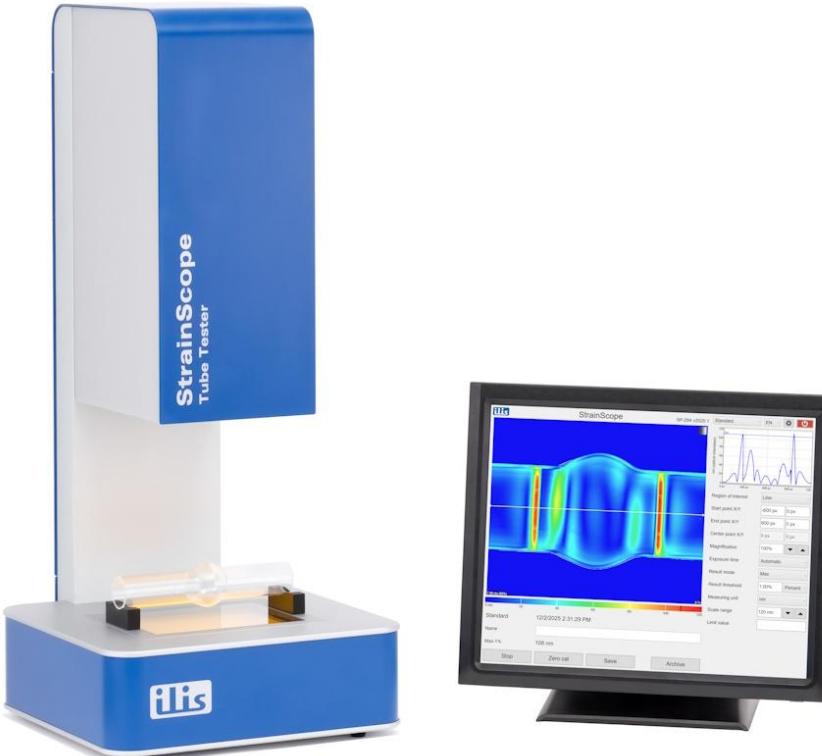


- Digital replacement for polarization microscopes with Berek compensator
- Minimized operator influence
- Monitoring of cord stresses (caused by inhomogeneous glass composition)
- Traceability by automatic documentation of the measurement results

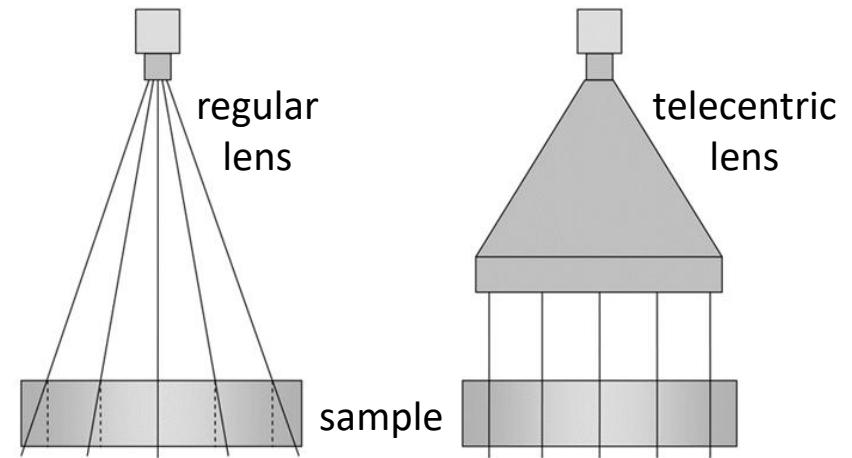


# StrainScope® Tube Tester

## tube glass and tubular products

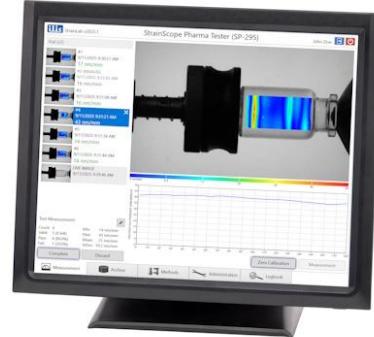


- Measurement of residual stress in tubular glass and products made of tube glass
- Distortion-free field of view through the use of telecentric optics
- Fast and easy operation

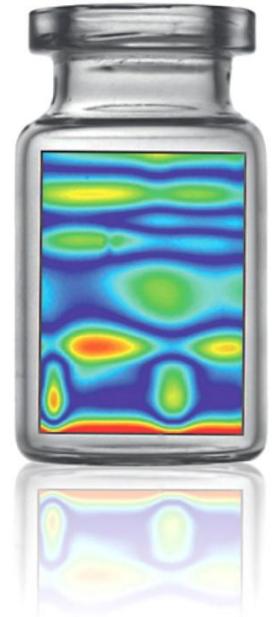


# StrainScope® Pharma Tester

## pharmaceutical glass packaging

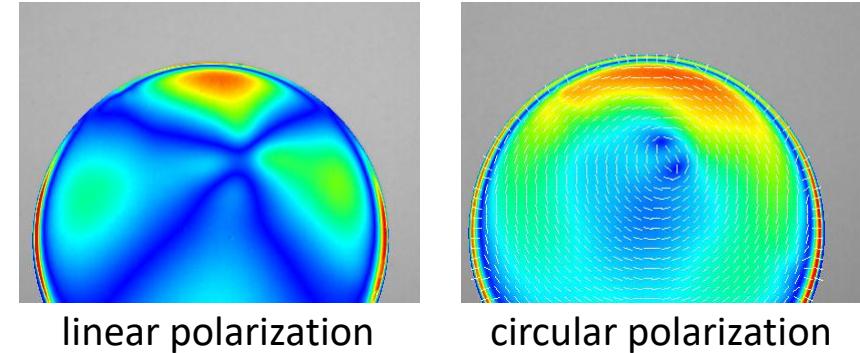
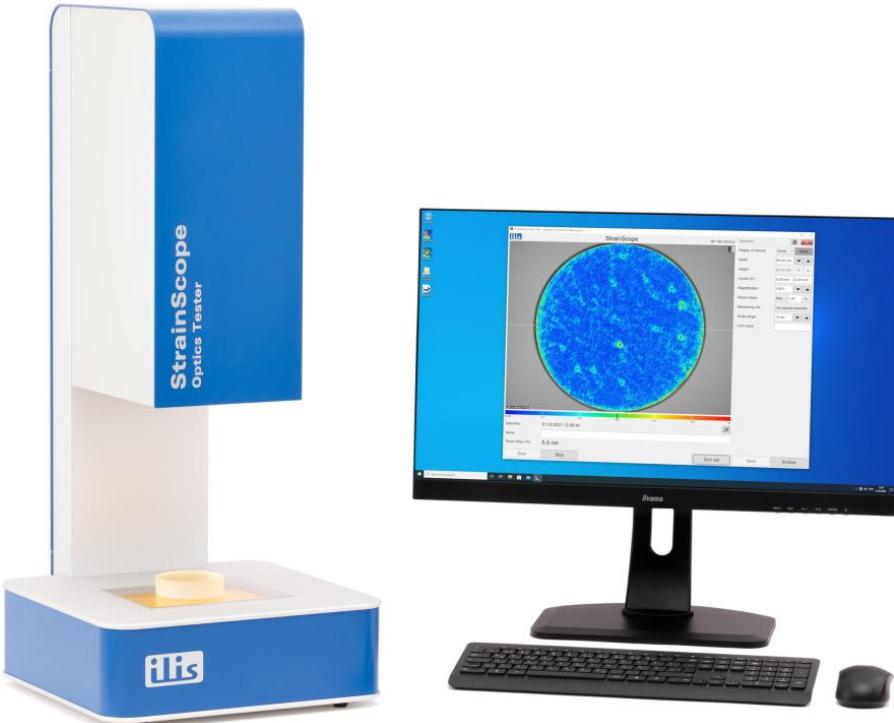


- Reproducible measurement of the residual stress in syringes, vials, ampoules and cartridges
- Telecentric optics for distortion-free measurement
- Automatic rotation and determination of the maximum stress value
- GMP-compliant software available (authentication, data integrity, traceability and qualification)



# StrainScope® Optics Tester

## optical materials and components



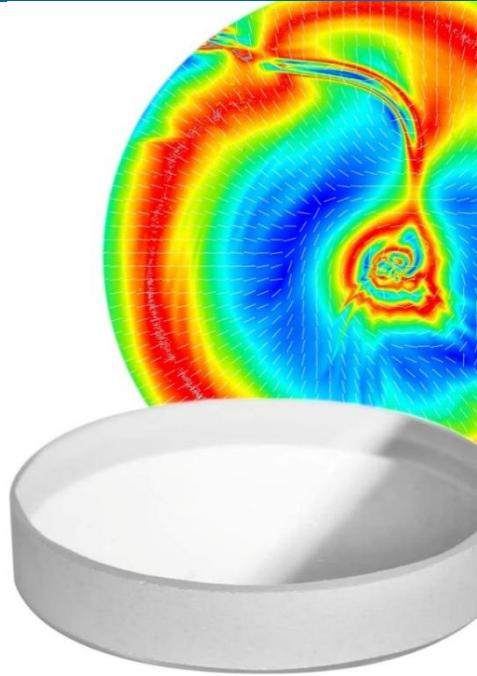
- Measurement independent of the stress orientation through the use of circular polarization
- Telecentric optics for distortion-free measurement
- Ideally suited for thick glasses or crystalline materials with intrinsic birefringence
- High resolution and sensitivity

# StrainScope® Stepper

## large-format optical and crystalline materials



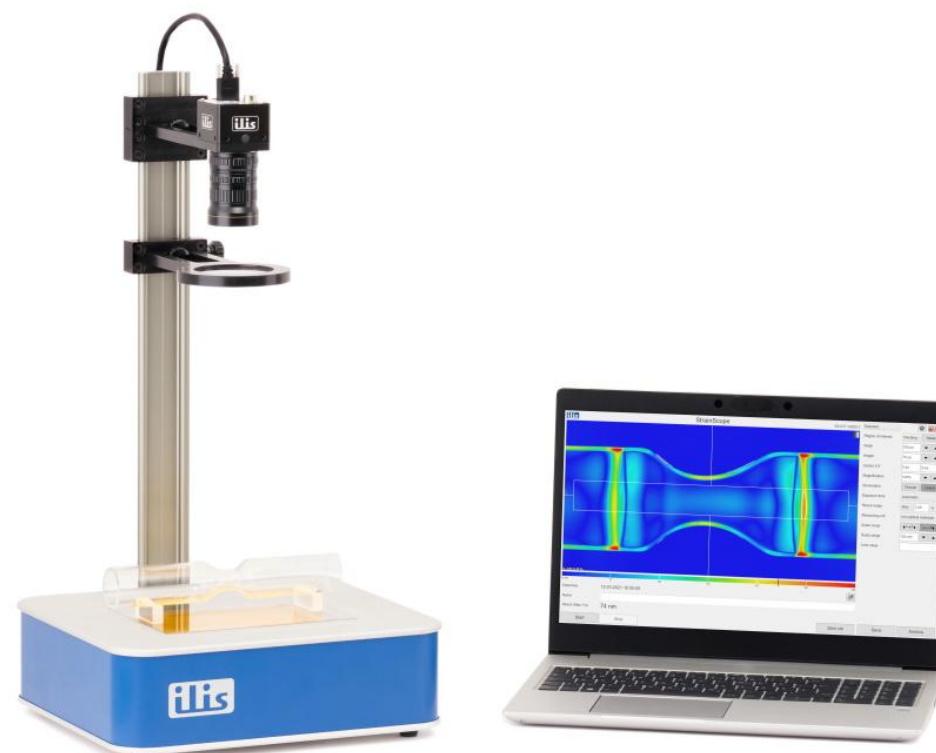
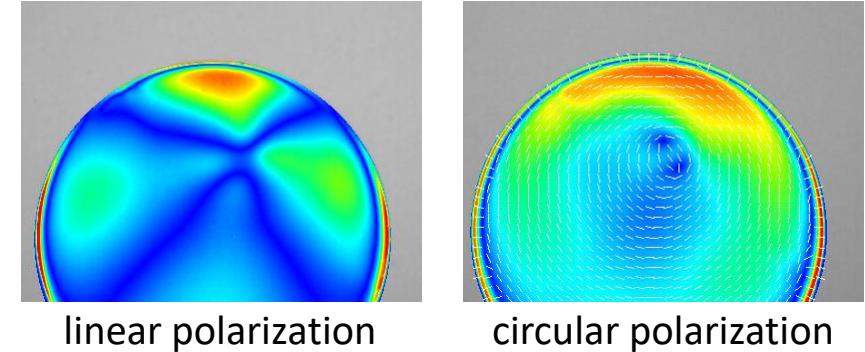
- Integrated positioning table with automatic stitching
- Telecentric optics
- $220 \times 220 \text{ mm}^2$  distortion-free field of view
- Application examples:
  - Optical glasses ( $\text{SiO}_2$ , etc.)
  - Crystal materials ( $\text{SiC}$ ,  $\text{CaF}_2$ ,  $\text{Al}_2\text{O}_3$ , etc.)
  - Lens blanks for lithographic applications
  - Semiconductor substrates (e.g.  $\text{SiC}$  wafers)



# StrainScope® Flex

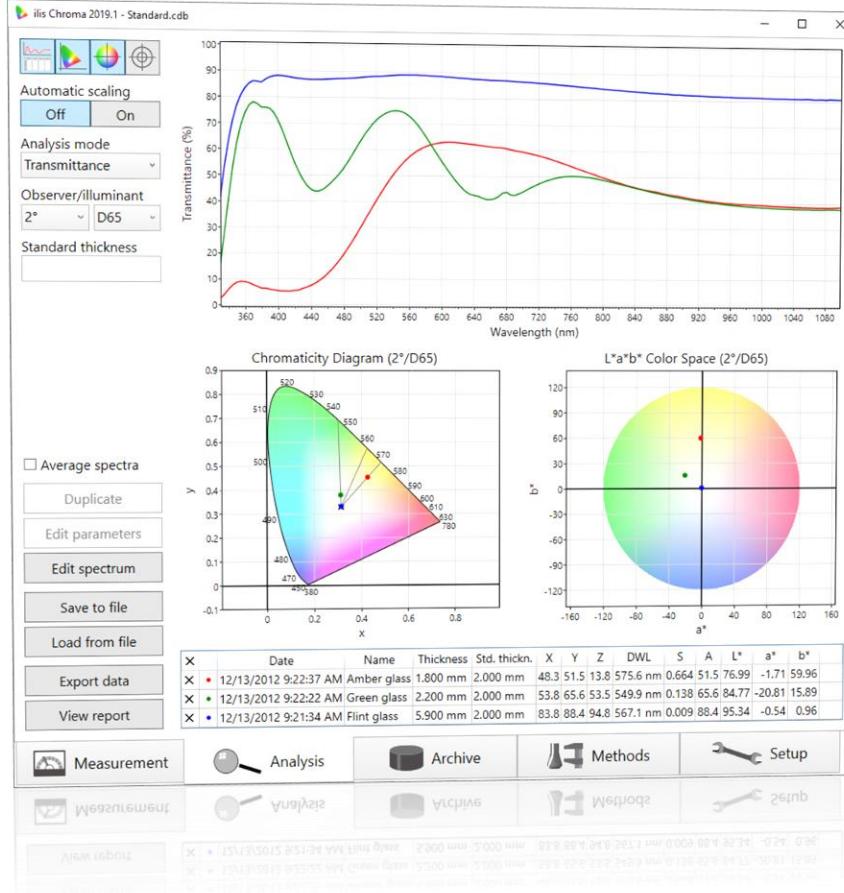
## modular real time polarimeter

- Flexible and compact design
- Versatile solution for varying measuring tasks in research, development and process automation
- Switchable between linear and circular polarization
- Exchangeable objective lens



# Chroma™ software

## color measurement (not only) for glass industry

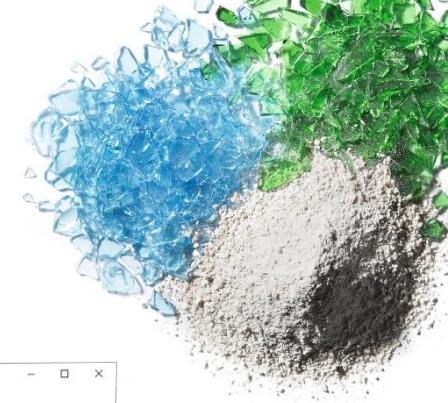


- Chromaticity/Helmholtz values, CIELAB, etc. (acc. to ISO 11664/CIE 15)
- Architectural and automotive glazing parameters (EN 410, ISO 9050, ISO 13837)
- Spectral redox determination ( $\text{Fe}^{2+}/\text{Fe}^{3+}$  ratio)
- Integrated data management and trend analysis
- Direct control of many spectrometer models
- Workflow-based user interface

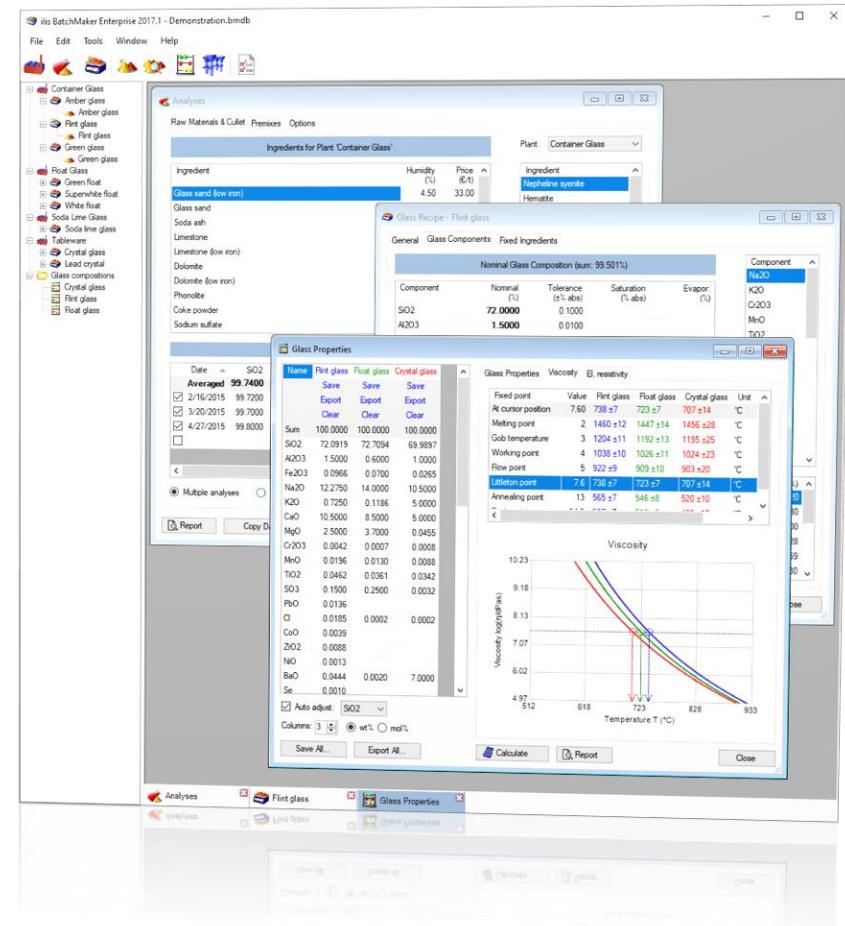


# BatchMaker® software

## batch recipe calculation and glass development



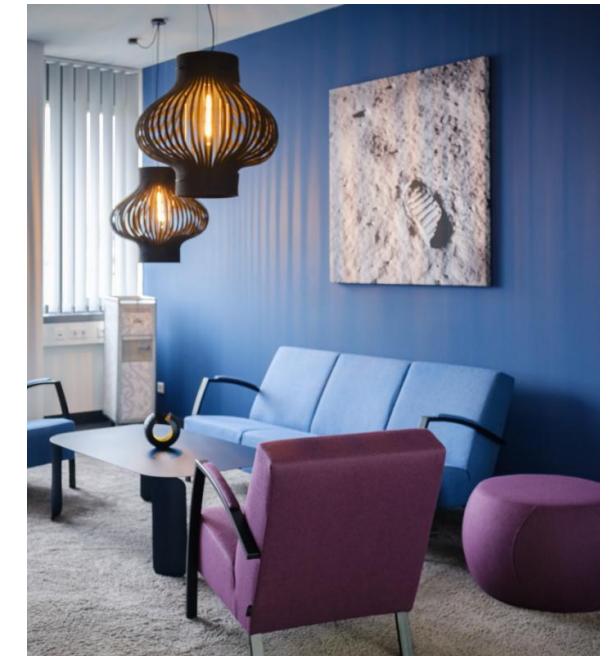
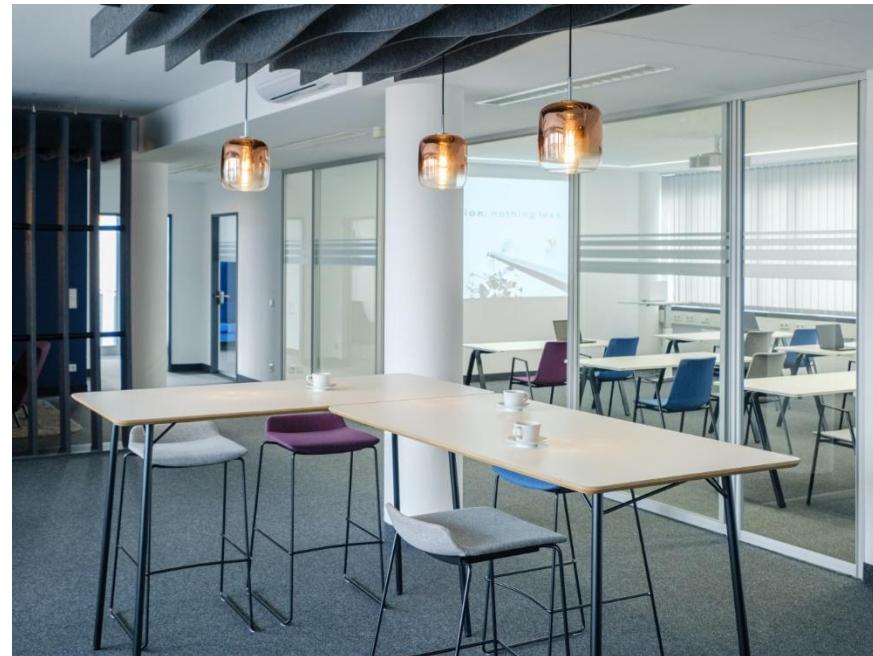
- Easy and fast calculation and correction of batch recipes for glass production
- Convenient management and editing of raw materials and chemical analyses
- Calculation of major batch and glass properties
- Integrated raw material usage and glass property calculator
- Internal database for easy data storage



# ilis academy

## seminars and workshops

- Practice-oriented seminars and workshops in small groups on the topics of residual stress measurement, color measurement and glass recipe calculation



# Customers worldwide



# What can we do for you?



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