State-of-the-Art Analyses

Unique set of highly sophisticated and precise analyses methods performed by SCHOTT pharma services experts on packaging analytics

Below you will find a selection of our analytical testing methods:

Chemical Durability Tests

- ToF-SIMS Secondary Ion Mass Spectrometry and Depth Profiling
- SEM Scanning Electron Microscopy
- LiMi Stereo Microscopy
- EDS Energy-dispersive X-Ray Spectroscopy
- F-AAS, GF-AAS, HG-AAS Atomic Absorption Spectrometry
- HR ICP-MS High Resolution Inductive Coupled Plasma-Mass Spectrometry
- ICP-OES, Spark-OES Atomic Emission Spectrometry
- ICP-MS, Laser Ablation ICP-MS
- FTIR- and Raman-Microscopy
- Wet Chemistry, Gravimetry, Titration
- Hydrolytic Resistance Tests
- Sample Preparation for Tests including Washing, Depyrogenation, Filling, and Sealing

E&L and System Performance Tests

- GC-MS Gas Chromatography – Mass Spectrometry
- GC-FID Gas Chromatography – Flame Ionisation Detection
- HS-GC Headspace – Gas Chromatography
- TD-GC Thermal desorption – Gas Chromatography
- LC-Q-Tof and LC-MS-IT-TOF Liquid Chromatography high resolution Mass Spectrometry
- LC-DAD Liquid chromatography with UV/VIS detection
- IC Ion Chromatography
- ICP-OES Inductive Coupled Plasma – Optical Emission Spectrometry
- ICP-MS Inductive Coupled Plasma – Mass Spectrometry
- HR ICP-MS High Resolution Inductive Coupled Plasma – Mass Spectrometry
- F-AAS, GF-AAS, HG-AAS Atomic Absorption Spectrometry
- Hot Gas Extraction Methods for C, O, S, N Determination
- Transmission, Reflection, Remission, Absorption in UV-VIS-IR Range
- FTIR- and Raman-Microscopy
- X-ray fluorescence spectrometry

Mechanical Stability Tests

- Fractography, Crack Origin, Microscopic Fracture Patterns
- Stress-optical Measurements
- Statistical Analysis of Strength Data
- Fracture Toughness
- Crack Initiation Load, Elastic and Plastic Indentation
- Static Strength, Tension-compression (uniaxial)
- Bending, Bursting (hydrostatic)
- Dynamic Strength, Notch Test, DCDC (crack growth)
- Climate Testing
- FEA Finite Element Analysis

Accredited according to DIN EN ISO/IEC 17025:

ilac-MRA

DAkkS Deutsche Akkreditierungsstelle D-PL-14645-01-00

Recent Publications & Whitepapers

1. | Hladik, B., Buscke, F., Frost, R., Rothhaar, U. Comparative Leachable Study for Glass Vials to Demonstrate the Impact of Low Fill Volume, J. Pharm. Sci. Technol. 2019, 73.
2. | Rothhaar, U., Klause, M., Hladik, B. Comparative Delamination Study to Demonstrate the Impact of Container Quality and Nature of Buffer System, J. Pharm. Sci. Technol. 2016, 70, pgs 560 – 567.
3. | Haines, D., Maurer, F., Rothhaar, U. Why do Pharmaceutical Glass Containers Break: The Underestimated Power of Strength Testing and Fractography, International Pharmaceutical Industry, 2016, Vol 8, Issue 1, pgs 88 – 92.
4. | Soegding, T., Canton, D.; Haines, D., Rothhaar, U. How Sterilization of Primary Packaging Influences the Results of E&L Studies, Contract Pharma, 2015, June, pgs 88 – 94.
5. | Haines, D.; Scheumann, V., Rothhaar, U. Glass Flakes: Pre-Testing Stops a Big Problem before it Even Starts, Contract Pharma 2013, June, pgs 92 – 98.

40103 ENGLISH-ROW 07/2019 ali/nino Printed in Germany

SCHOTT AG
Hattenbergstraße 10
55122 Mainz
Germany
Phone: +49 (0)6131/66-7339
Fax: +49 (0)3641/2888-9125
pharma.services@schott.com

www.schott.com/pharmaceutical_systems

SCHOTT
glass made of ideas