

Our Glass and Raw Material Services at a Glance

GLASSPRODUCTION

Chemical Analyses:

- Analysis of the individual elements or element oxides with the ICP-OES according to DIN 51086-2 (after digestion) boron inclusive
- Fe 2+ in glass with phenanthroline in accordance with DIN ISO 14719
- Hexavalent chromium (Cr VI) in glass on the basis of diphenylcarbazide
- Detection of sulfur specifications (SO₃ / SO₂)
- Hexavalent chromium (Cr VI) in glass on the basis of diphenylcarbazide
- Quantitative and semiquantitative analyses of corrosin, i.a. water resistance of crushed glass at 98 ° C according to DIN ISO 719 and at 121 ° C according to DIN ISO 720, EU Pharmacopeia 8.0 and USP 37 to 41 USP, water resistance of the inner surface of glass by means of autoclave in accordance with ISO 4802-1, EU Pharmacopeia 8.0 and USP 37 to 41 USP, water resistance of the inner surface of glass according to the Russian GOST 13905-2005, resistance to a boiling aqueous solution of hydrochloric acid in accordance with DIN 12116, resistance to a boiling mixture aqueous solution according to DIN ISO 695, migration in acetic acid in accordance with DIN EN 1388-2 investigation pursuant to Directive 2005/31 / EC lead and cadmium permeability and ISO 7086-1 and ISO 7086-2 with the extension to the aluminium, cobalt and arsenic permeability in accordance with Article 3 of Regulation EC 1938/2004

Physical Analyses:

- Density determination,
- Homogeneity assessment in accordance with the ASTM C 978
- Cooling tensions (residual stresses) of hollow glass articles according to groups 1 to 5 with the polariscope in accordance with the ASTM C 148
- Detection of seeds and bubbles
- UV-VIS spectrometry for the valuation of colour characteristics following CIELab and Helmholtz according to DIN ISO 11664-4 and DIN 5033
- FT-IR spectroscopy for the identification of the cold end coating used on surfaces of glass containers, interface measurements on glass surfaces and OH-determination

Thermal Analyses:

- DTA (Differential thermal analysis)
- DSC (Differential scanning calorimetry)
- Determination of the viscosity in accordance to DIN ISO 7884 (log 10^{4,0}, log 10^{7,65} and log 10^{13,0})

Glass Properties:

- Surface tension (test of labelability)
- Slip angle
- Distribution of cold end coating (CEC) on the container surface with ABP method
- Impact strength of glass containers according to DIN 52295 (pendulum impact test)
- Thermal shock resistance according to ISO 7459
- Determination of the glass distribution and dimensional tolerance

Glass Defects:

- Inclusions such as stones, crystalline inclusions, nodules, and streaks, investigation and identification by use of microscope, SEM-EDX, ICP-OES, XRF
- Fracture analysis of glass products
- Analysis of bubbles and seeds content by mass spectrometry or Raman spectroscopy

Consumer Complaints:

- Glass artefacts, pieces of glass, minerals, metals, plastics and other contaminants, identification by microscope, SEM-EDX, ICP-OES, XRF

Others:

- Hexavalent chromium (Cr^{VI}) in liquids on the basis of diphenylcarbazide
- Determination of REACH-relevant elements AS, Cd, Cr (VI) Pb, Sb and Se according to REACH regulation n.1907 / 2006 / EC
- Arsenic determination according to EU Pharmacopeia 8.0
- Verification concerning California Proposition 65, wipe test according to NIOSH 9100 and NIOSH 7105
- Dishwasher test

RAW MATERIALS**Chemical Analyses:**

- Analysis of the individual elements or element oxides with the ICP-OES according to DIN 51086-2 (after digestion)

Physical Analyses:

- Sieve analyses (DIN 66165)
- Bulk density of raw materials (International Standard ISO 697 (earlier edition: DIN 53912))
- Loss of ignition at different temperatures (e.g. 550 °C, 1100°C) following DIN 51081
- Humidity of raw materials and batches following DIN ISO 11465
- Heavy mineral content in the raw material
- Separation of iron (rich / containing) particles with a neodymium-magnetic-separator
- Determination of HCL-non-soluble components, e.g. silicate in limestone
- Decrepitation test

GLASS RECYCLING**Chemical Analyses:**

- Analysis of the individual elements or element oxides with the ICP-OES according to DIN 51086-2 (after digestion)
- Determination of total carbon content, content of chloride and loss of ignition (DIN 51081)

Physical Analyses:

- Lot sorting for the determination of impurities
- sieve analyses and determination of impurities particularly KSP
- investigation of hollow glass cullets for the semiquantitative determination of glass ceramic or lead containing cullets
- detection of corundum or other infusible particles e.g. like zirconia and metals