MiPlaza Materials Analysis
A solution for every problem

In today’s high-tech innovations, understanding the materials and processes is often key to success. And that’s where MiPlaza can help you, offering a range of solution-oriented services in materials characterization. You can use our expertise for quick problem-solving or longer-term support for your research, development and manufacturing programs.

Why choose MiPlaza?
• Easy access to cutting-edge expertise and high tech infrastructure
• Asset-rich with the latest equipment, saving you investment in high-cost apparatus
• Fast, efficient and cost-effective, accelerating your time to market

Extensive range of materials analysis services including
• Trace analysis and contamination control
• Inorganic materials characterization
• Surface and thin film characterization
• Electron and optical microscopy
• Molecular analysis
• Glass characterization
• Failure analysis

Materials Analysis is part of the extensive range of services you can access at MiPlaza on the High-Tech Campus Eindhoven. From device technologies and systems creation, to materials analysis, test and measurement, discover the possibilities yourself at www.miplaza.com.
Capabilities addressing all your analytical needs

Chemical analysis
Expertise
• Determination of chemical composition (from main constituents to ultra-traces) of solid materials, solutions and gases
• Characterization of glasses and powders
• Optical characterization of thin layers
• Support of bio-projects, e.g. dissolution tests
• Operational analysis of lighting products

Techniques used
Titrimetry, AAS, ICP-AES, (LA)–ICP–MS, FIMS, Characterization of glasses (viscosimetry, stress, thermal expansion), Ellipsometry, XRF, Element specific techniques (C,N,O,H,S), Powder characterization (BET), TGA(MS), TOC, Radiochemistry, gas MS.

Typical examples
• Main composition and impurities in different salt pellets
• Traces in dielectric materials
• Accurate composition of thin layers
• Trace contaminants in cleanroom air
• Valence state of metals in oxidic materials
• Concentration of rare-earth elements in phosphors and organic lipids
• Accurate composition of glasses, ceramics, composites, metals and alloys
• In-situ, in-line and at-line monitoring of chemical processes
• Total organic carbon in gas-systems
• Leak detection methods
• Permeability of foils

Molecular and structural analysis
Expertise
• Characterization of materials with respect to structure, composition and orientation
• Characterization of gas, liquids and solids (under non-ambient conditions)
• Time-resolved and in-line analysis
• Characterization in complex (biomedical) matrices as well as in devices
• Identification and molecular weight (distribution) of organic materials
• Phase, texture and stress analysis in inorganic and thin-film materials
• Competitor screening
• Experimental design and chemometrics

Techniques used
Chromatography (GC, HPLC, GPC), Spectroscopy (FT-IR, NIR, UV/Vis, Fluo, Raman, NMR, TOF-MS, ion trap MS), XRD, AFM, SPM, Thermal Analysis) and Rheometry.

Typical examples
• In-line characterization of curing in coatings
• Analysis inside working devices such as polyLEDs or batteries
• Imaging of biological samples like hair or teeth
• Emission measurements in processes and cleanrooms
• Assessment of MRI contrast agents
• Analysis of vacuum-deposited, multi-phase semiconductor materials
• Determination of thermal stability, phase transitions and physical properties of polymers and mixtures

Surface and thin-film analysis
Expertise
• Chemical composition of surfaces and thin films
• Depth profiles and mappings of dopants and contaminants
• Characterisation of interfaces
• Morphology and microstructure of (patterned) thin films and whole products
• Cross-sectioning with nanoprecision and nanomachining

Techniques used
SEM, EPMA, XRT, TEM, FIB, XPS, AES, SIMS, TOF-SIMS, RBS, ERD.

Typical examples
• Quality check of seals and electronic components inside lamps
• Layer thickness, step coverage, crystallinity and grain size of thin films
• Root cause analysis of defects in lamps, displays and coatings
• Size and shape distribution of nanoparticles and vesicles for biosensors, molecular imaging and functional coatings
• Characterization of self-assembled monolayers and biomolecule adsorption
• Dopant profiles in semiconductor devices
• Reverse engineering of displays, solar cells, lamps, etc...

MiPlaza, world-class expertise working for you