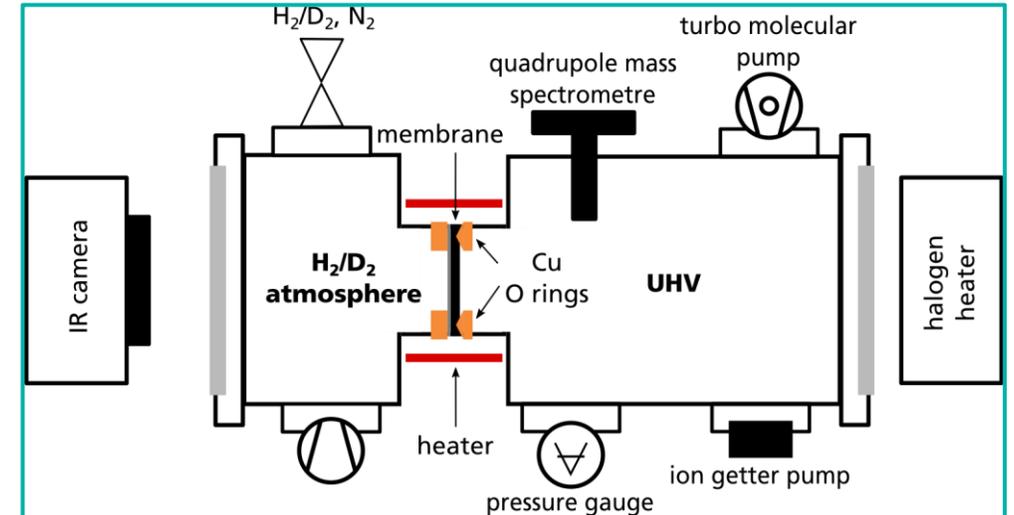
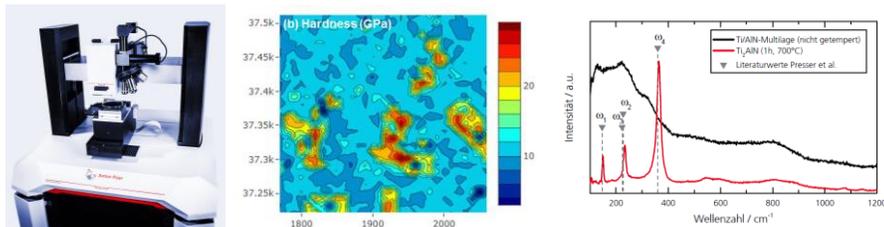


Group: Tribological and Functional Coatings Service Offer

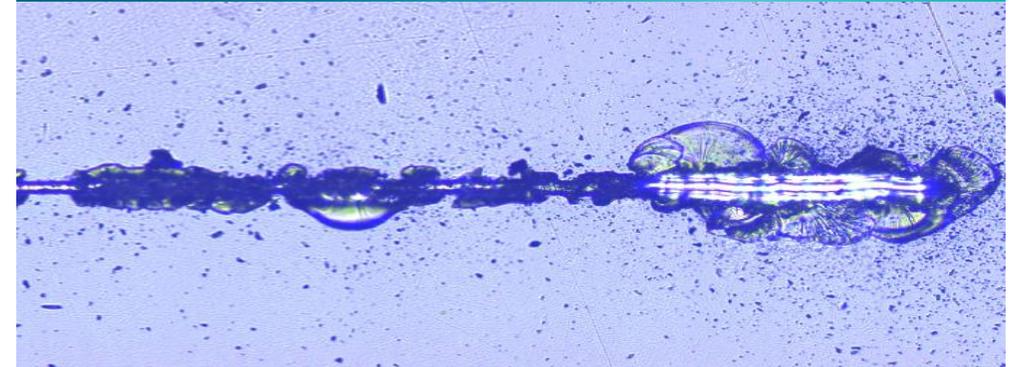
Tribological and Functional Coatings

Coating characterization and assessment

- Investigation and characterization of hydrogen barrier coatings; determination of diffusion coefficients
- Surface and coating analysis and assessment, FEM-simulation of coating's performance; failure analysis
- Linear and scanning scratch tests, local Nanohardness, Rockwell indentation, Weibull distribution, temperature dependent stresses
- White light interferometry, AFM, 3D-SEM,
- (GI) XRD, XRR, EBSD, RHEED
- EDX, GDOES, Raman Microanalyses
- Surface conductivity, dielectric strength, reflection



- Gas phase permeation measurements → diffusion coefficients (D), permeation reduction factors (PRF)

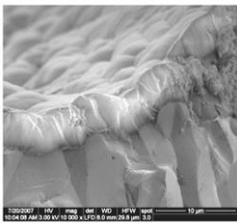


- Linear scratch test, coating assessment

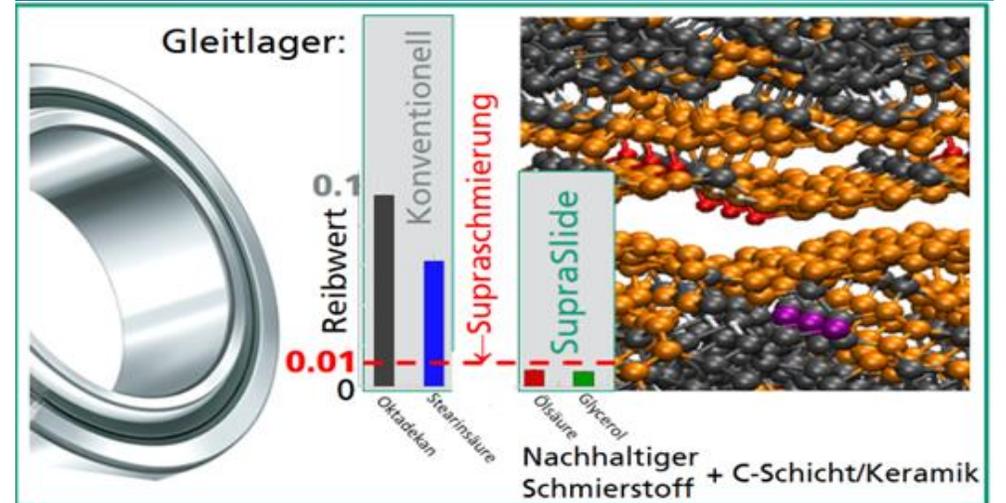
Tribological and Functional Coatings

CVD coatings and processes

- Unique reactor design; custom-built PECVD-coaters
- Simulation-supported process development and transfer, upscaling; pilot production
- microcrystalline diamond coatings via micro wave plasma
- Plasma processes for surface functionalisation and material conversion; hydrogen production by plasmalysis
- Fast deposition of hard DLC-Coatings via CVD
- DLC-Coatings for bearings and sealings; ultralow friction
- Decorative/Functional coatings for plastics and elastomers
- Tool coatings



- Custom-built PE-CVD Reactor for coating of gas-tight sealing rings

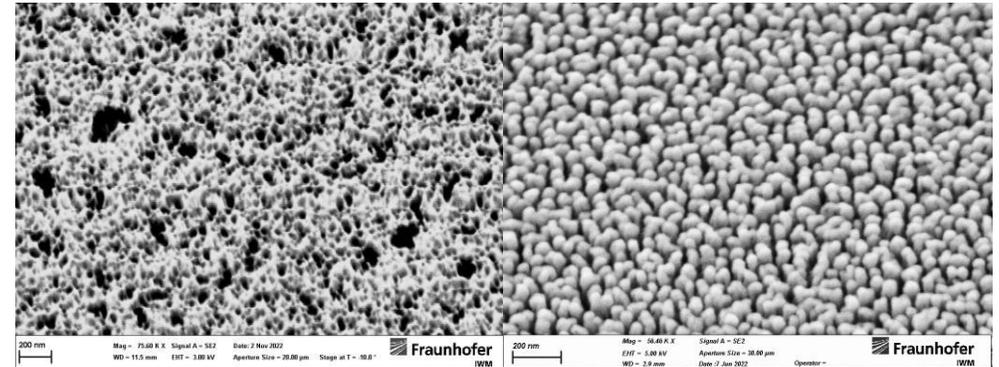
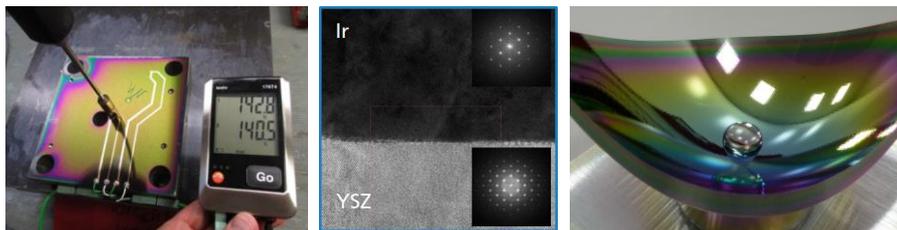


- Ultra-low friction, 'superlubricity'

Tribological and Functional Coatings

PVD Coatings and Processes

- Nitrides, oxides, noble metals; MAX-phases; nanostructured, multilayered
- HF/MF/DC-MS, HiPIMS, IBAD, DIBS, E-beam; radial filtered arc
- Hybrid RF/HiPIMS-Processes
- Plasma processes for surface functionalisation
- Thin film sensors; pressure, temperature, wear
- Decorative/Functional coatings for plastics and elastomers
- Tool coatings for processing of glasses and polymers
- Diamond heteroepitaxy
- Development of hydrogen barrier coatings



Reactive plasma etching of nanostructures in float glass, omnidirectional reflection reduction



SiO₂-Deposition; Left single HiPIMS-Plasma with arcing, right combined, stable RF-HiPIMS-Process