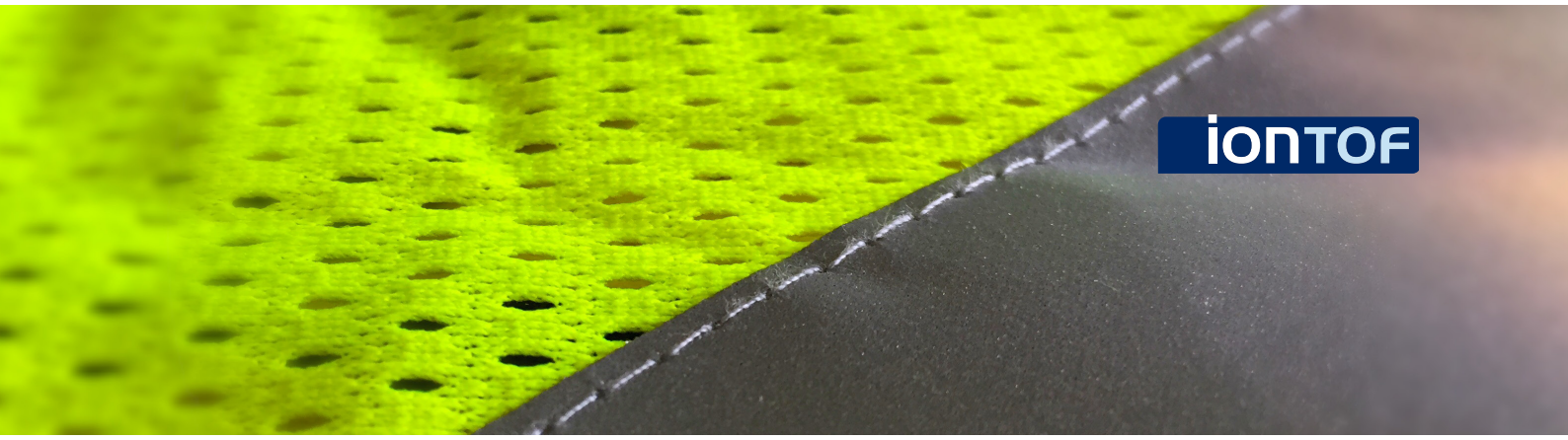


2 6

Spherical Lenses

Superior field-of-depth and angular acceptance

The analysis of non-conductive materials with extreme surface texture can be very challenging and has a high demand on the charge compensation, analyser angular acceptance and the field-of-depth of the used instrumentation. A good example for such a sample system are spherical lenses situated on a metallic substrate.

In this sample small glass beads are embedded in an aluminium foil to achieve a high degree of visible light reflectivity under all kinds of weather conditions.
The TOF.SIMS 5 extraction optics have a large field-of-depth and a superior angular acceptance which are ideally suited for such imaging applications.

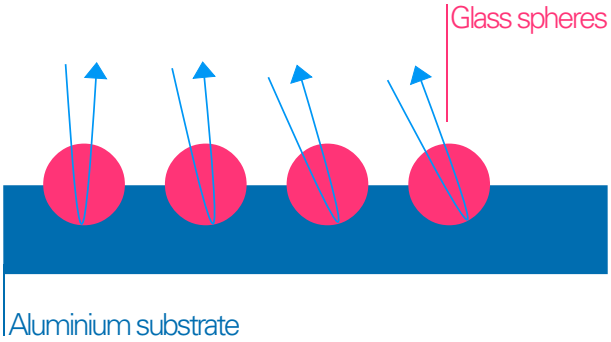
ION-TOF

Heisenbergstraße 15
48149 Münster
Germany

Phone +49 251 1622-100
Email sales@iontof.com
Internet www.iontof.com

Retroreflective surfaces

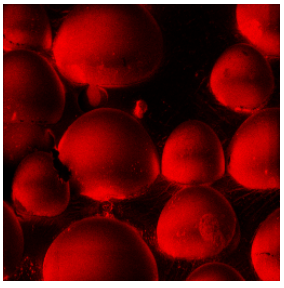
Retroreflective surfaces direct light back towards the source of the light. The structure consists of small glass spheres which are half embedded in a metal film.
The graphic below shows the functional principle of the retroreflective surface. Incoming light is refracted when it enters the sphere through the front surface. It is then reflected by the mirrored coating at the rear side and refracted again when it leaves the sphere towards the light source.

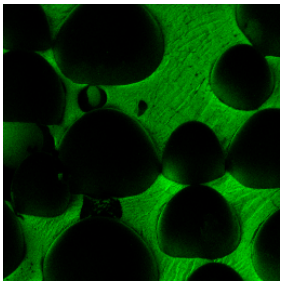


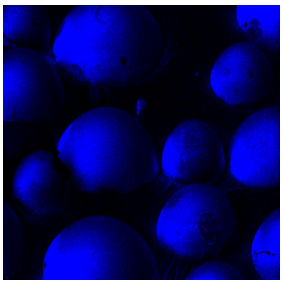
Structure and functional principle of a retroreflective surface

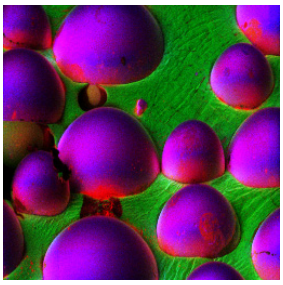
Homogenous transmission without shadowing

The example below shows a chemical image obtained from a retroreflective surface used in standard reflective vests. The advanced extraction optics employed in the time-of-flight analyser allows for homogenous transmission from all regions of the sample surface.
The images below show the distribution of Na, Al and Ba obtained using standard static-extraction mode.


Na


Al


Ba


Overlay

Surface image of the retroreflective layer of a commercially available reflective vest showing the lateral distribution of Na (red), Al (green) and Ba (blue). Field of view: 180 µm x 180 µm