

The leading player in Innovative Materials

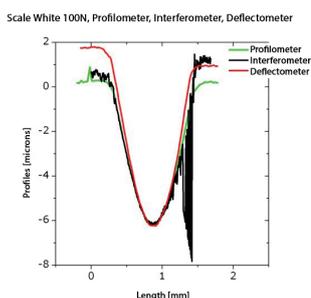
POLYMAP: A HIGHLY INNOVATIVE AND VERSATILE DEVICE FOR ANALYSIS OF SURFACES



As part of MICA's collaborative projects, Holo3 has developed a surface analysis device specifically adapted for measuring brilliant surfaces. This development is part of an exploratory project initiated in 2013 in collaboration with the Charles Sadron Institute, one of whose objectives was the miniaturization of a glass measuring method for analysing the recovery of opaque polymers following mechanical stresses.

The success of this project enabled continued collaboration on a 2014 R&D project spanning three years aiming to study the recovery of self-healing materials, in which the POLYMAP device is integrated onto a new measurement bench. The maturity of the technology achieved in these projects is already enabling Holo3 to consider a distribution of the device to interested researchers and industrialists.

Measuring brilliant surfaces



The measuring principle implanted in the Polymap device consists of a miniaturization of the deflectometry principle already installed on devices designed by Holo3 and specifically dedicated to measuring specular surface (car windows.). The measurement carried out by the device is a measurement of local slopes on the analysed surface (1M point on 1cm²) with this slope then being used for a 3D reconstruction of the surface.

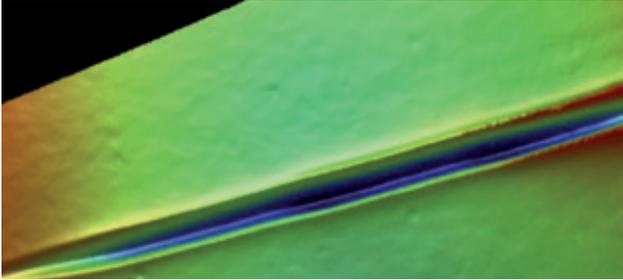
The sensitivity of the process allows the footprint on the polymer to be measured in microns and then becomes comparable to measurements obtained by interferometry or mechanical profilometer. This method has the advantage of carrying out a measurement in seconds without sample preparation or prior adjustment.

In terms of industrial applications, the measurement of fine levels of unevenness or microgeometry on machined metal parts is one of the major intended applications. The specular character of these materials is particularly suited to the measurement principle and the speed and simplicity of producing the measurement (compared to a roughness meter or a point sensor) and the density of measured points make it a powerful tool.

Quality analysis

The principle of deflectometry is extremely advantageous for the study of the optical properties of surfaces by its sensitivity to the brightness characteristics of the surface. In fact, an acquisition simultaneously produces images of slope, terrain, and reflectance, making it a suitable method for the rapid detection of a problem or non-homogeneity on a microscopic scale.

Strengths



The Polymap device has an integration dedicated to rapid measurements and integration into a laboratory or production line. It is in the form of a measuring head. Management and analysis of the results is carried out by a local or remote PC. The basic features enable the analysis of results (3D view, slopes and height of the points of the surface) and the results obtained are easily exportable in a format that is readable by other programs (ASCII point clouds).