In Depth characterization of photopolymerized materials by Confocal Raman Spectroscopy.

Ariana Villarroel Marquez[1], Emile Goldbach[1], Clara Galland[1], Céline Croutxé-Barghorn[1], Xavier Allonas[1]

[1]University of Haute-Alsace, LPIM, 3b rue Alfred Werner – 68093 Mulhouse, France

Confocal Raman Microscopy (CRM) is a powerful microscopic and spectroscopic technique to fully characterize the intrinsic chemical properties of thin and thick organic materials. The confocal analysis allowed us to achieve a highly solved spatio-temporal description of chemical composition on the surface and more importantly along the depth of the material. This could subsequently be correlated to the history of formation and "life" of the analyzed coating films and materials.

Few representative examples will be presented during this talk to describe the methodology and resolution in depth and correlation with more established methods frequently used in the analysis of photopolymers conversion such as RT-FTIR, limited nevertheless to thin films.

In brief, CRM is presented as a powerful complementary technique to achieve useful chemical and photochemical information in the function of the starting material and/or resin composition. This brings clearness for the optimization of formulations applied on different 3D and 4D printing, techniques nowadays used in a growing myriad of applications to bring response to stricter environmental regulation.

References

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