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Cambridge Polymer Group



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Vitamin E content in UHMWPE



In a recently published article in the *Journal of Biomedical Materials Research*, CPG scientists describe a new method of quantifying the amount of Vitamin E, a naturally-occurring antioxidant, in ultra high molecular weight polyethylene (UHMWPE). This technique uses a thermal approach to measure the oxidation resistance of the material via an oxidation induction time measurement.

The results are compared to a calibration curve, which then allows determination of the effective Vitamin E concentration in the material following any processing step (e.g. molding, irradiation, sterilization). The technique has better sensitivity than other published techniques. For more information, contact [Cambridge Polymer Group](#) or [view the publication](#).

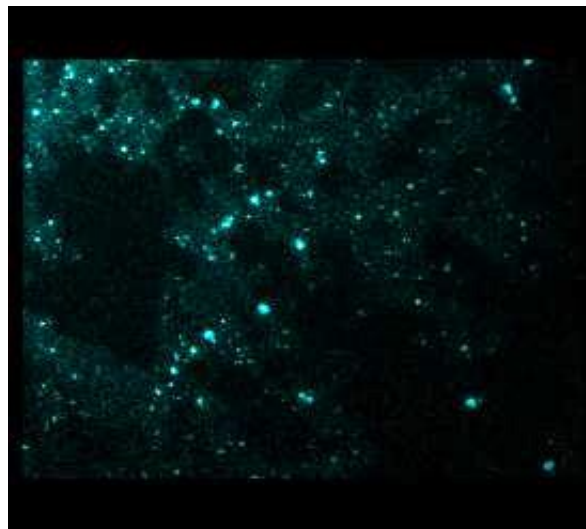
Filler content in plastics

Inorganic fillers are often added to thermoplastics to provide increased rigidity, hardness, impact strength, thermal conductivity, radiopacity, as well as reduced mold shrinkage. Filler, in the form of a powder, is normally compounded into the thermoplastic resin with an extruder, with filler contents ranging up to 60 wt.% depending on the application.

The degree of dispersion, identity, and quantity of filler can be determined with scanning electron microscopy with energy dispersive spectroscopy (SEM-EDS) and

thermogravimetric analysis (TGA). SEM-EDS provides structural and elemental information about the polymer resin. TGA provides mass change in the sample as it is heated to high temperatures.

In the application note below, this analysis was performed on a filler in polymethyl methacrylate. The results shows that the resin contained approximately 10 wt.% zirconium oxide.



Link to the [full application note](#).



Cambridge Polymer Group, Inc. is an ISO 9001:2008 certified contract research laboratory specializing in polymeric materials.

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