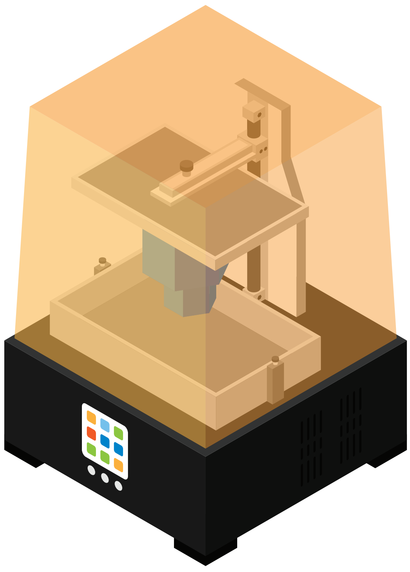
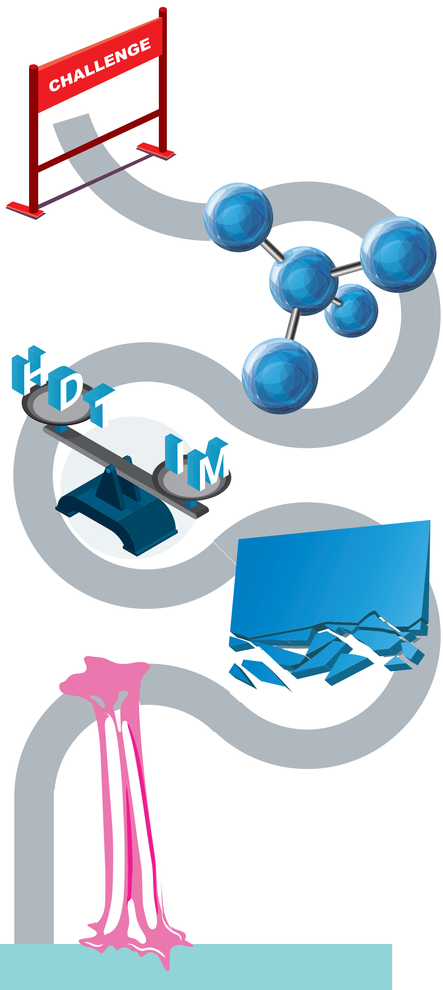
BOMAR

LEADING THE DEVELOPMENT OF IMPROVED 3D–PRINTING MATERIALS



1 THE CHALLENGE

Bomar is working to create solutions that allow photopolymer–based 3D printing to match the capabilities of extrusion–based 3D printing, developing resins that incorporate thermoplastic materials such as polycarbonate or ABS, with superior impact–and– temperature–resistance properties.



2 THE TRADE–OFF

Stronger UV–curable materials with higher Heat Distortion Temperature (HDT) are generally low in impact resistance, being more inflexible/ brittle due to high degrees of crosslinking in their molecular composition. Bomar is developing combinations of specialized materials that allow for both properties to be achieved, without sacrificing either.

3 VISCOSITY

As Bomar researches and develops materials that balance HDT and impact resistance, we also advance the capability to balance these properties with formulation viscosity, a crucial factor for 3D–printing solutions.

4 THE MATERIALS

To identify the best options for 3D–printing oligomer development, Bomar tested three experimental Hard Resins (HR) both alone and together with several Impact Modifying (IM) materials. This research led to greater understanding of how ideal HDT and impact resistance can be achieved for a range of 3D–printing solutions.

5 TENSILE PROPERTIES

The HR/IM combinations with the most promising HDT/impact resistance properties were also subjected to additional testing to identify those which showed higher tensile strength and reduced elongation.

THE RESULTS

The data gathered in testing several urethane (meth)acrylate resins has allowed Dymax to expand the reach of light–curing 3D–printing processes, and gain powerful insight into improving both HDT and IM simultaneously, rather than simply sacrificing one for the other. As industry leaders in the chemistry, mechanical systems, and expertise needed to provide total solutions to our 3D–printing clients, Dymax will apply what we've learned, and continue to push our understanding even further.

WANT THE FULL REPORT?

If you're a professional who wants to learn more, Bomar offers the complete details of this exciting work for your review at www.bomar–chem.com

Bomar is a leading innovator of advanced–performance materials for energy (UV/EB), light, and other free–radical cure applications. Our scientists synthesize a broad range of select specialty oligomers, custom–designed to satisfy the unique performance requirements of emerging application technologies, while providing customers an edge in formulating products with outstanding performance, reproducibility, and cost effectiveness.

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