

COMMON PARAMETERS FOR YOUR FORMULATING PROJECT

Before starting the formulation process, it is important to consider the factors below.



TARGET APPLICATION



Coatings and inks require a focus on film properties like scratch and abrasion resistance and surface energy. 3D-printing resins require much more of a focus on bulk properties of the cured material such as tensile strength and elongation.

SUBSTRATE



Proper raw material selection is crucial to the adhesion characteristics of your formulation, and adhesion of the formulation will vary widely based on the substrate. Free-radical curing formulations tend to have challenges adhering to metals, and inert plastics such as polyolefins tend to be very challenging substrates for adhesion.

CURING CONDITIONS



Cure conditions will impact the photoinitiator selection and weight ratio, the functionality of your monomers and oligomers, and your ability to use different pigments or UV absorbers.

SURFACE EFFECTS



Different additive packages and backbone chemistries can be used to alter the feel or surface characteristics of the formula. Waxes and particles can be used to impart a variety of surface feels or visual effects.



METHOD OF APPLICATION

The application method will dictate certain characteristics of the formula apart from its cured properties, such as its viscosity, rheology, surface energy/contact angle, and compatibility with mechanical components that the uncured resin may be in contact with.



VISCOSITY REQUIREMENTS

Low viscosity requirements will limit your ability to use high viscosity or high molecular weight materials and will require the use of high quantities of monomers; high viscosity and thixotropy requirements may require the use of different additives in order to build the proper rheological profile of the formulation.



STAIN, CHEMICAL, & THERMAL RESISTANCE

Raw material selection will vary widely based on what types of chemistries or environments that the cured product will be exposed to. Increasing the crosslink density of your formula tends to improve resistance to aggressive environments.



REGULATORY NEEDS

Even if your formulation works properly, if the materials are not compliant with application-specific regulations or are not listed on the appropriate chemical inventories (e.g. TSCA, REACH, etc), the formulation will not be a viable commercial product.



BOMAR

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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