

### Energy-Cured Coatings – Benzophenone California Prop 65

#### Scope

- With the addition of Benzophenone to the California Proposition 65 list of hazardous chemicals, awareness of the chemical composition of UV coating products has received more focus across the spectrum of the Graphic Arts Market.
- The listing of Benzophenone on the California Proposition 65 list does not ban the use of this material, as many substances that are commonly used are also listed on the Proposition 65 list – a substance that is listed does need to be properly labeled and the determination of use then lies on the end-user or consumer of the product.
- Benzophenone is a low molecular chemical photo-initiator (CAS Number 119-61-9) and is widely used in UV coating formulations throughout the printing and packaging industries.
- Benzophenone-free coating products are not new to the industry and have been used for many years in various markets – Benzophenone-free UV coatings have been used for food packaging, plastic water bottles, cosmetics and pharma-care products to minimize the initiator migration into the product.

### Energy-Cured Coatings – General Q&A Benzophenone-Free Coatings

#### FAQ/Q&A

The table below lists commonly asked questions/answers regarding Benzophenone-free coating products:

Question	Answer
<b>Do I need to run a Benzophenone-free coating differently than a coating that contains Benzophenone?</b>	No – Benzophenone-free coating will run on the same equipment that Benzophenone coating is used on.
<b>Do I need to run Benzophenone-free coating at a slower press-speed or with higher UV intensity than a coating that contains Benzophenone?</b>	No – Benzophenone-free coating should cure at the same press-speed and UV power/exposure as Benzophenone coating, the cure-response should be very comparable.
<b>Will a Benzophenone-free coating have less gloss than a coating that contains Benzophenone?</b>	No – Benzophenone-free coating will exhibit the same gloss potential as a Benzophenone coating.
<b>If I see a difference in cure, what can I do to match previous jobs produced with a Benzophenone coating?</b>	The same as using a coating containing Benzophenone, cure-dose or the amount of UV lamp power and press-speed/dwell can be adjusted to achieve the desired cure results.
<b>Are there odor differences between Benzophenone-free coating and a coating that contains Benzophenone?</b>	Yes – all UV coatings exhibit some degree of odor. Benzophenone coating, due to the low molecular weight properties of the substance, will have a different odor than a Benzophenone-free coating. Odor is a highly subjective sense and will have different results from person-to-person in terms of perceived odor differences. Generally, Benzophenone-free coating will exhibit less odor when properly cured compared to a Benzophenone coating.
<b>Are all Benzophenone-free coatings considered low-odor coatings?</b>	Generally, Benzophenone-free coatings are considered both low-odor and low-yellowing, but this is dependent on the individual

	<p>formulation being used along with all other variables/materials used in the process taken into consideration. Consult your INXCAC Technical Sales Representative for a product recommendation based on your criteria and conditions.</p>
<p><b>Does use of a Benzophenone-free coating automatically qualify to be a low-migration coating?</b></p>	<p>No – low-migration coatings require avoiding the use of low molecular weight materials that may migrate into other materials/products. In addition to the initiator, depending on the application, other alternative formulation materials may be necessary to achieve a low-migration status.</p>
<p><b>Is Benzophenone a better initiator than non-Benzophenone initiator?</b></p>	<p>Benzophenone is an efficient and cost-effective initiator. The formulation of a coating without Benzophenone may require several different non-Benzophenone initiators to match the same coating performance. With proper formulation, the difference in performance between Benzophenone and Benzophenone-free coatings should be negligible.</p>
<p><b>Are Benzophenone-free coating products more expensive than coatings that contain Benzophenone?</b></p>	<p>Yes – typically Benzophenone-free coating products cost 15 - 20% more than products formulated with Benzophenone due to the increased material costs.</p>

For additional information, we recommend consulting your INXCAC Technical Sales Representative for specific product information.