

Oxygen inhibition: achieving a tack-free cure with UV adhesives and coatings

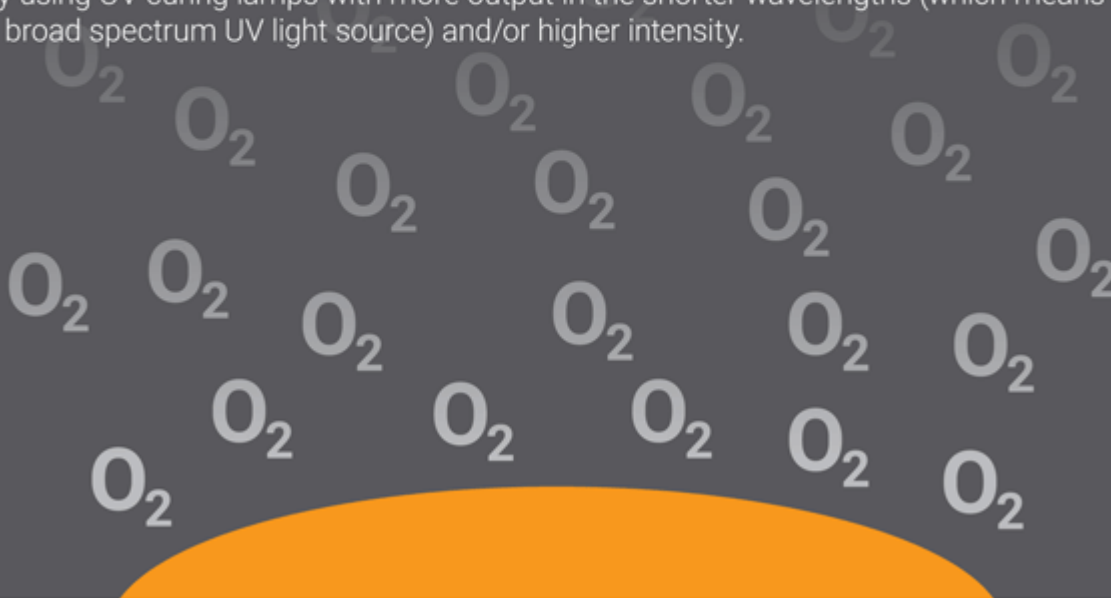
Sometimes, cured [UV adhesives](#) or [coatings](#) have a tacky or sticky surface, even after they are exposed to the correct amount of UV light to achieve full cure. If the surface of the adhesive is exposed to atmospheric oxygen during the cure, the oxygen can penetrate into the very top layer and inhibit the polymerisation process. This is called “oxygen inhibition”.

Oxygen inhibition isn't always a problem, for example if you are curing the adhesive interfacially. If the bondline is exposed, you might find the tacky surface to be undesirable.

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Oxygen Inhibition

If you get a slightly sticky or tacky surface after curing, this could be a result of oxygen inhibition. This is a well understood phenomenon of free radical cure chemistry, where the presence of normal atmospheric oxygen at the surface of the adhesive can inhibit the cure at that surface, resulting in a very thin layer of an adhesive constituent remaining – the bulk of the adhesive is cured. Tackiness can be reduced or prevented by using UV curing lamps with more output in the shorter wavelengths (which means a broad spectrum UV light source) and/or higher intensity.



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So what can you do to prevent oxygen inhibition with UV and light curing adhesives? Our **Technical Bulletin**, [*UV Curing and Tack-Free Cures*](#), explains the phenomenon and provides some recommendations for achieving a tack-free cure.

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Last updated: December 2019

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