

PENN COLOR PET UV SOLUTIONS



Ultraviolet Light (UV) exposure induces the degradation of organic ingredients in soaps, vitamins, flavorings, and many other light-sensitive products which can result in diminished color, potency, and efficacy and even a shortened shelf life. **Protecting your product from harmful UV light ensures that sensory attributes such as aroma, taste, and color are not impacted.** This results in a product that delivers as intended, resulting in a **delightful consumer experience.**

The Penn Color line of PET UV solutions are highly effective products that safeguard the lifespan of UV-sensitive contents in PET containers of all shapes, sizes, and applications. UV solutions are available in pellet and liquid form, providing flexibility for your manufacturing process. **Clarity and transparency** are critical components of a package aesthetic and remain unaffected by our UV products. Suitable for use in both virgin PET and rPET, our products enable you to bring protection and recyclability to your final article.

Masterbatch Solutions

We offer various pelleted, solid masterbatches that offer exceptional storage and stability without compromising performance, safety, or usability. These products contain an ultraviolet light blocker with UVA and UVB protection ranging from 200 to 400nm. Our products have FDA and EU clearances, with some products having extended regulatory compliance, developed specifically for fatty food type applications. These products are suitable for use in injection stretch blow molding, sheet extrusion, and BOPET applications. 66UV11964 has been certified by Recyclass and EPBP (European PET Bottle Platform) to meet the guidelines for compatibility with recycling.

Liquid Solutions

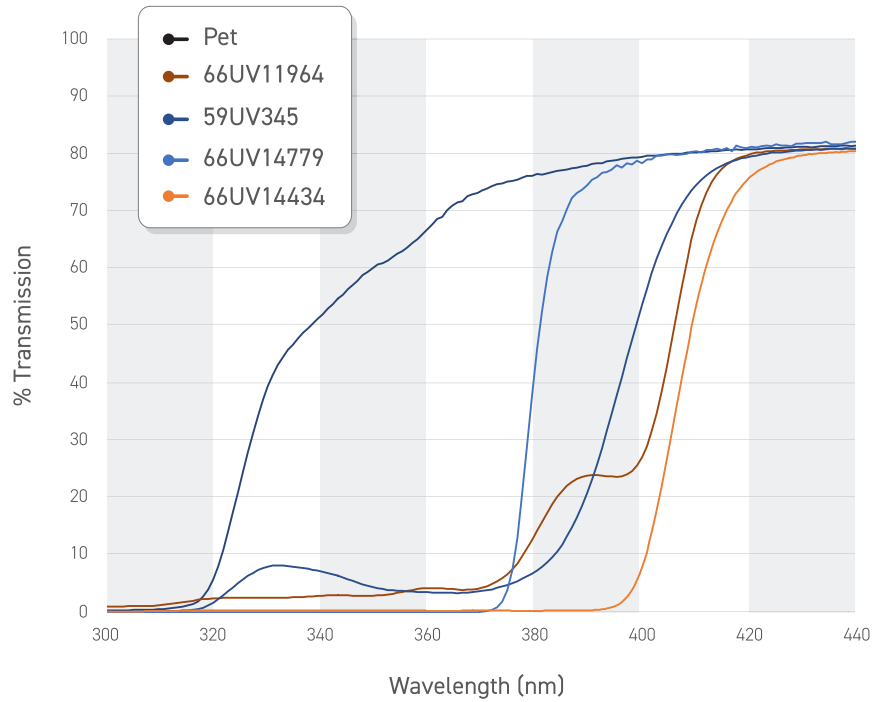
Our liquid UV solution contains an ultraviolet light blocker with both UVA and UVB protection from 200-390nm. Designed to protect light-sensitive products from UV degradation, this product will not plate out or migrate in PET applications. Supplied in liquid form, it requires a liquid dosing pump and is suitable for injection stretch blow molding, sheet extrusion, and BOPET.

Code	Product	Type	Coverage (nm) @ <10% LT
66UV11964	PET UV	Pellet	390
59UV345	PET UV	Liquid	390
66UV14779	PET UV	Pellet	380
66UV14434	PET UV	Pellet	400

UV SOLUTIONS FUNCTIONALITY

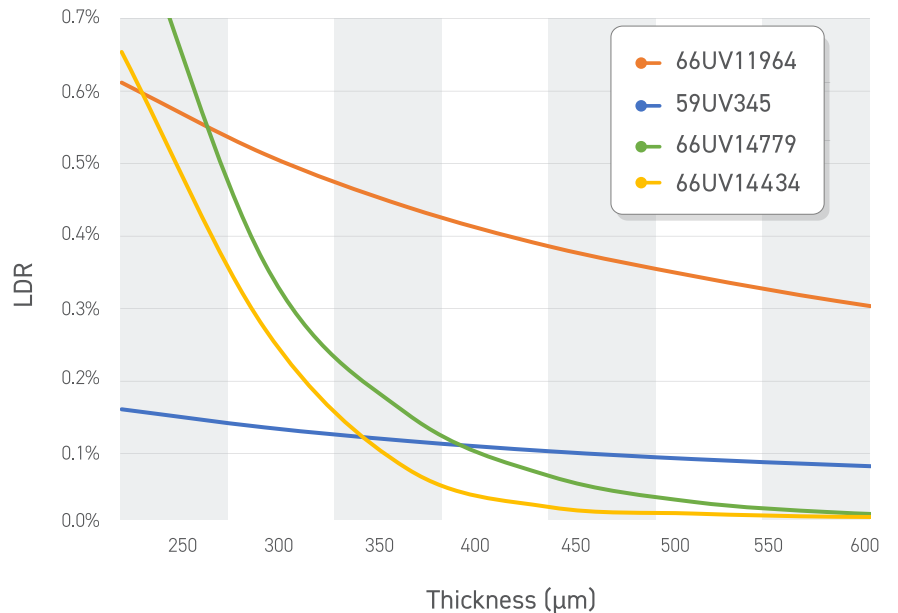
Coverage

Penn UV solutions deliver an impressive UV barrier, allowing less than 10% transmission up to 400nm. As a result, it serves as an excellent alternative to currently available liquid UV and pellet UV additives, as demonstrated in the accompanying graph. Through consultation with Penn, your application and desired outcomes will be evaluated. A curated product recommendation will be made to ensure the optimization of our product utilization and the attainment of optimal performance levels.



Dosage Correlation

The graph below depicts the correlation between PET wall thickness and the required loading levels of UV stabilizers to achieve targeted UV protection. Additives 59UV345 and 66UV11964 provide effective attenuation at 390 nm at the specified concentrations, while 66UV14779 achieves UV transmission below 10% at 380 nm under the same conditions. This data offers a quantitative basis for determining optimal additive dosages based on desired UV barrier performance and container geometry.



IMPORTANT INFORMATION

LDR recommendation is intended for guidance only and may need to be adjusted based on performance, processing method and regulatory requirements. Detailed compliance documentation can be provided by Penn Color's Product Stewardship Department upon request. However, be advised it is the responsibility of the user to assess its product uses and applications and assure compliance to all applicable laws and regulations, including FDA 21 CFR and EU food contact status. Regional coding suffixes may apply.

ISO 9001 Certified