

## Furniture Finishing

Modern day Conversion Varnishes and Catalytic Lacquers are still widely used in the furniture industry. Both have been chemically altered to make these products more water-tolerant and a bit harder than earlier versions.

**Conversion Varnish-** These varnishes are chemically cured, fast-drying and usually consists of 2 parts: the finish and an acid catalyst that's added just before spraying. The catalyst creates a chemical reaction (i.e., the cross-linking of varnish molecules) in conjunction with added heat-curing elements that create a very durable finish. Conversion Varnishes require more time to dry and great skill in applying. They are still used in outdoor applications, such as boats. Pockets of boutique-style manufacturers will also use this type finish for indoor furniture as well.

**Catalytic Lacquers-** These lacquers were driven by market demand from the production furniture and cabinet industries. They wanted a product with the same look and ease of application afforded by traditional nitrocellulose (NC) lacquer, but one that would also offer much better water, chemical, and abrasion resistance.

Catalytic Lacquers cure faster than traditional NC lacquers due to the chemical catalysts that have been added. Catalytic Lacquers still contain some nitrocellulose resins, but the addition of urea resins makes these products much more durable. The chemical cure is initiated when an acid catalyst is added to the mixture.

Large, high-volume furniture manufacturers prefer the pre-catalyzed lacquers because their production cycles guarantee that they will use a predictable quantity over a given period of time. Buying the pre-catalyzed version saves them time and labor. It also eliminates the possibility of operator error in not mixing the proportions correctly.

**Polyurethane (PU) or Modified PUs** – These are the other major options for commercial furniture use. This type of finish is harder, chemically resistant to products such as acetone, and are waterproof. Chemical polymer bonds form a “plasticized” shell on the furniture that is many times more durable than lacquer finishes. PU's provide for this thicker and harder finish because of their higher resin content and lower amount of solvent compared to Catalytic Lacquers.

Because of their lower content of solvent, PUs do not release the amount of volatile organic compounds that lacquers do. Nor do they cause the long-term exposure to fumes (off-gassing) that is seen with many manufacturing processes- including furniture finished by Catalytic Lacquers. Even so, PUs do contain isocyanates (another toxic chemical) in the solvent, which does dissipate within several hours after application.

Further, PU finishes combine individual components, much like an epoxy style-type glue, which harden in a short period of time. This makes the finish application more difficult compared to lacquer applications. Additionally, PUs must be applied in a dust-free environment, taking up valuable space in the manufacturing environment, and adding cost to the manufacturing process.

That said, for those in the Hospitality Industry, the difference between a PU finish and Catalyzed Lacquer finish is noticeable within the first few months of furniture use. There will be fewer nicks and dings in the furniture, and no water or chemical issues. Although using PU's is initially more expensive, the overall return on investment is much greater.

