

The most durable kitchen cabinet finish is a catalyzed conversion varnish. This is the most durable finish available for wood. It's chemical and moisture resistant, making it easy to clean. It's also more flexible. This means it expands and contracts with the wood as the temperature changes.

This varnish is great for paints and stains. It might be more expensive than traditional lacquer but the benefits are worth it. Your cabinets should look better for longer.

Pre-cat vs conversion varnish...

Ease of use. Pre-catalyzed lacquer is much more user-friendly than conversion varnish because conversion varnish must be catalyzed by the user prior to use, measuring in catalyst in precise quantities and sometimes letting the stirred and catalyzed mix "dwell" (sit for minutes while the catalyzed coating starts the reaction). Pre-cat needs no dwell time because the catalyst is part of the mix before you open the can.

Conversion varnish has pot life issues of 8 hours to weeks depending on the manufacturer of the coating and climate conditions. Gemini Coatings has been making a 21-day pot life CV for the longest time (longer than 21 days) and it has an excellent reputation as a coating, as does Gemini as a manufacturer. Pre-cats have no pot life issues but they do have shelf life issues from 90 days to two or more years, also depending on the brand and specific product.

Conversion varnishes could stay wet for more than 35 minutes depending on the brand (you must read the spec sheets for every coating that you use). Pre-cats handle like traditional lacquer and flash in maybe 20 minutes at the longest.

Some conversion varnishes have recoat windows that you have to factor in. Your spec sheet will tell you what and when. Even so, ambient conditions and/or operator error can quick in a recoat issue for any catalyzed coating, CV or pre-cat. The symptom? Wrinkling of the undercoat.

Conversion varnishes are 85% cured within about two days of their application. Pre-cats take about 3 to 4 weeks to achieve a cure that is worthy of any kind of performance. This is a performance issue and not an issue of when your sprayed parts are going to be ready to stack or pack (that would be a drying issue and I already touched on the flash times and spec sheet aspects of figuring this out).

Advantages of CV vs. pre-cat. CV's are usually tougher and perform with more durability than pre-cats. Depending on the pre-cat, the differences might be nominal to minimal or they could be vast. Some pre-cats, once fully cured, are almost as tough as any CV. Most CV's are non-yellowing. This is not always an advantage but it is a feature and something to consider.

CV's have higher solids ratios per weight and volume of applied coating. It takes less of the catalyzed product to build more mil thickness. One little factor not considered by many end users is that the amount that you catalyze the product, you reduce the coating's resin content, e.g., adding in 10% by volume of catalyst to a coating which has at its outset 28% solids reduces the coatings solids content down to 25.2% solids by volume ($28 - 2.8 = 25.2$).

A disadvantage of a CV that specifies xylene as its reducer is just that, exposure to xylene. Xylene and toluene are two things that you want to protect against and avoid. With proper precautions and care this is no issue. With inexperienced and reckless operators and such, they run health risks down the road.

The glassy look. If you cut down on the production issue and thin/reduce your coatings more (thinner build per sprayed pass) then you will lay down better quality coats. But you will need to lay down more of those coats, hence the sacrifice in production. This is where the air-assisted airless spray delivery systems seem to excel, **(HVLP's)***** laying down incredibly smooth off-the-gun coats of unreduced material. In that many CV's today seem to handle like lacquer in terms of flash times, stack and pack times, but not the time it takes for full cure.

One coating is not better than the other. It depends on many factors and it's up to you to weigh all those factors and certainly know what they are. It's all about tradeoffs, pros and cons.

Here I am talking specifically of **MLC's Krystal**...

- 1) CV is a lot more chemically durable than pre-cat. A lot - trust me on this....
- 2) Krystal thins with regular lacquer thinner, not xylene.
- 3) Krystal stinks to high heaven, but so does pre-cat.
- 4) Krystal is a good bit higher in solids content. If you are using a good AAA and don't thin more than 10% or so, you should be able to get a spectacular finish in two passes.
- 5) Krystal has a sealer available but it's not needed. Krystal sands very well after curing up. Much better than

pre-cat.

6) Krystal has an 18-month shelf life (uncatalyzed) vs. the 4-6 month shelf life of pre-cats.

7) Krystal is available pigmented (called Stealth) just like pre-cats. It's also extremely durable.

8) CV never blushes. Pre-cat will sometimes, given the right situation.

9) Doors/shelves sprayed with CV can be stacked after an overnight cure with the utmost confidence, pre-cat can/will stick together on hot days even after a good cure.

The only reason to use pre-cat is if you were a penny-pincher in a hurry. It's a good product, but give yourself time and you'll quickly discover that the quicker cure time of CV, the sandability, the much better durability, all make CV the stuff of choice.

The ease of touchup/repair. One down side to CV is that it is often impossible to get a touchup or spray/spot repair to blend in. Complete re-spraying of the entire panel/door/etc. is often necessary to achieve an acceptable appearance. The increased chemical resistance means it's also difficult to strip. Although it is more durable than most pre-cat is, it is not impervious to damage. On site repairs consisting of spray blending and/or rubbing out the finish are usually much easier with pre-cats.

How easy it is depends on what pre-cat you are using, the sheen and stain color and how cured it is. Not all pre-cats are the same. Some are almost as hard and resistant as CV while others are little more than a glorified Nitrocellulose. The less resistant the pre-cat is, the easier it will be to touch up and repair. I use touch up lacquer in a spray can, and Behlen blush eraser to blend the touch up in. Try not to rub if you don't have to, but if it cannot be avoided, use wool lube and 4-0 steel wool.

At first it was Opticlear and then it was Plastofix and now it's E-var. All are Chemcraft products and all seem to be good stuff. The big difference is water resistance. If you go back to a job you did with Opticlear in a few years, you will see that it has yellowed and more than likely has water damage under the sink if the customer has kids. CV isn't very likely to have water damage. Also, when you get right down to it, you pay a lot less for E-var than you do for Opticlear because you can get the same build with 1 seal and 1 topcoat even with using their 8001 chem vinyl sealer.

What Is Conversion Varnish?

Conversion varnish, also called catalyzed conversion varnish or catalyzed varnish, is a lacquer which consists of a high-end solid two-part post-catalyzed application process. But what does that mean, exactly? In short, a hardening agent is added to the varnish prior to painting. This hardening agent provides additional durability when combined with the heat-curing process. Conversion varnish is chemically cured and fast-drying, and consists of 40-60% solids.

However, it must be applied by a professional to ensure the correct ratio of chemicals and solids is used so that it hardens correctly. Conversion varnish does cost more than house lacquer, but it is also much more durable and easy to clean. It is this characteristic that makes it an excellent option for **[painted cabinet doors](#)**.

Conversion Varnish vs Lacquer

Lacquer is commonly used on cabinets and cabinet doors, and for a long time it was thought of as the best wood finish. So how is it different from conversion varnish? Lacquer uses a pre-catalyzed nitrocellulose finish that can be sprayed on and air finished. It consists of about 12-18% solids, which means that many applications are required to get a proper build and density.

Lacquer does have some benefits when compared with other finishes. It is fast drying, which helps ensure a cleaner finish, and cures quickly via evaporation, which makes repairs relatively easy. It's also fairly low cost and tolerates a variety of different climate environments quite well. However, it also has some significant disadvantages. Lacquer has a high VOC content, making it harmful to the environment and to your health. It has limited scratch resistances, and the low solid content means its film building properties are poor.

When compared with conversion varnish, lacquer just isn't as durable. It's significantly less resistant to heat, solvents, acid, and alkali than conversion varnish paint, and it simply doesn't protect the wood as well. It can also have a yellow tint, which can worsen over time. Ultimately, if you're looking for a finish that can handle constant use and repeated washing, lacquer simply isn't as durable as conversion varnish.

Conversion Varnish vs Polyurethane

Polyurethane is often considered one of the most durable finishes, so many people also wonder about conversion varnish vs polyurethane. Polyurethane can have many benefits, particularly when compared to many other finishes. Polyurethane is actually a form of varnish and therefore really is quite durable. Polyurethane can resist scratching, heat, alkali, acids, and wear better than many other finishes, including lacquer. It also offers an attractive, protective finish.

However, there are some downsides with polyurethane. It can yellow overtime, especially if in direct sunlight. It also requires sanding in between each coat to ensure proper bonding, but since the dry time is up to 24 hours, that can mean it takes quite some time to fully finish a piece. It is also typically brushed on, rather than sprayed on, slowing the application even more. So then, why not choose conversion varnish every time?

Conversion varnish is typically more costly than polyurethane because it needs to be professionally applied. However, it also lasts much longer and, although polyurethane is quite protective when compared to other lacquers and paints, conversion varnish is still consistently more durable. While it might cost a little more, it is ultimately a better value, offering longer lasting protection and durability in your home.

Conversion Varnish Advantages

Conversion varnish is the premium paint finish for all sorts of projects, including cabinetry and cabinet doors. This post Catalyzed conversion varnish offers a number of benefits on your cabinet doors. You may choose conversion varnish over other cabinet paint or lacquer products because it:

- Is more durable and elastic, moving with the wood
- Requires fewer coats
- Dries faster and harder
- Is resistant to heat, humidity, and scratches as long as it's properly applied and cared for
- Offers a smoother finish
- Is easy to clean
- Helps protect the wood longer

When it comes down to it, Conversion varnish is the clear winner. Let's take a closer look at the advantages offered by conversion varnish to better understand why it's such a smart choice.

Better Durability

When compared to basic home lacquer paint; conversion varnish wins in durability. It is largely a solid coating which is hardened during the application process, so it stands up better to regular use. It doesn't have a tacky feeling like some of the regular house paints, and instead offers a smooth, hard finish that's better for high traffic and high use areas in the home.

Clear Coat Finish

When conversion varnish is applied, you'll get a smooth, clear [color](#) and finish. This highly polished finish creates a refined appearance in your kitchen or bathroom, but also makes it easier to care for. In addition to looking great, the ultra-smooth and durable surface is easy to quickly clean or wipe down. Whether your cabinets are subjected to use in a hot, humid kitchen while cooking frequent big meals, or you have small children whose messy little hands leave sticky fingerprints, conversion varnish paint can stand up to it all.

Easy To Clean

When it comes to conversion varnish vs paint, there's no contest when it's time to [clean up](#). Conversion varnish simply applies smoother and doesn't have a tacky or sticky feel like many kinds of house paints. That means if some food or other mess gets on your cabinet doors, they're much easier to clean than traditional cabinet and house paint. Better still, the coating is more durable than other lacquers and paints, too, so it will continue looking great after years of gentle cleaning. Remember not to use harsh chemicals.

Conversion Varnish Problems

Problems with conversion varnish are always a product of faulty application. For catalyzed conversion varnish to come out correctly, it requires particular conditions. If it is not applied properly, conversion varnish problems can include:

- Color shifting due to the acid catalyst
- Cracked finish if more than 3 coats are applied
- Incorrect hardening if the shop temperature isn't kept in the upper 60s for 2 days after application

Because of its particular requirements, this type of catalyzed varnish requires a skilled professional to spray on the finish correctly and get the right results. After it's applied, it must be cured in a properly temperature controlled environment. Ensure that you don't experience any conversion varnish problems by getting your cabinet doors professionally finished by a company you trust.

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