The Process of Water based Varnish Drying

Varnish “DRY” happens when the water evaporates from your varnish coating leaving the surface feeling dry to the touch.

Paint “CURE” happens when your paint coating has reached its maximum hardness When reading the label on your varnish container, it will tell you the DRY time, not the CURE time.

Dry Time for the First Coat

Thickness and application of your varnish can directly affect how long it takes to dry. Your dry time will also vary greatly depending on how you choose to coat your substrate. For the initial drying time, it usually takes 30 to 90 minutes to be dry to the touch. Paint drying time depends on the type of varnish, thickness of application and application method.

There is much more varnish applied when using a paint brush. A varnish brush applies the film at the right thickness.

Adding a Second Coat

After your first coat of paint is dry to the touch, it’s safe to recoat typically three to four hours. A good rule of thumb is to wait at least three hours to recoat, if it’s water-based. If you’re unsure, the instructions on the label can give you the best final say.

Curing Time

The time it takes for varnish to harden completely so that it resists scratching, is called **curing.**

However, having it dry enough to wash, withstand abrasion or application of other coatings will depend on temperature and humidity and thickness of varnish. Cross linked varnishes cure faster than uncrosslinked and polyurethanes cures faster than acrylics.

We recommend giving 7 to 10 days for acrylics, depending on the humidity and temperature in the room. Polyvine crosslinked polyurethanes cure in 16 hours. **Wait for your substrate to cure** before attempting to apply other coatings

Factors That Affect Drying Times

Temperature

Varnishing during the spring or autumn is ideal because the temperatures aren’t too hot or cold. If you’re varnishing in a chilly room, expect increased drying times. The best temperature to varnish is a warm room with low humidity.
Varnish will appear dry before it actually is, which typically happens when a second coat is applied before the first one is totally dry. It's important to get this right:

Assuming that your varnish has dried before all of the layers actually have, can lead to cosmetic issues down the line.
Drying time can mean various things when it comes to varnishing, so it helps to think of it as different degrees of dryness. At the first level, we have 'dry to touch' where the paint may feel dry, but all the layers underneath are still wet. The next level is the paint being dry enough to add a second coat.

How long varnish Takes to Cure

There's a difference between varnish being dry enough to apply another coat and it being truly dry and scratch-resistant. The time it takes for your varnish to harden and dry completely is called curing. That process can take days and varies depending on the type of varnish you use. Generally, you should wait to put furniture back, hang wall art, and clean your walls until the curing period is over.

Emulsion paint and acrylic paint: 14 to 30 days to cure
Acrylic vanishes 5 to 7 days to cure.
Polyurethane varnish 16 hours.

Temperature

How hot or cold a room is may impact drying times. When you're varnishing in a colder environment, it may take longer for your varnish to dry because the cold temperatures can thicken each coat and slow evaporation. On the other hand, hot temperatures can cause varnish to dry on the surface, but leaves a soft film underneath that struggles to dry correctly.

Humidity

High humidity can also extend varnish drying times. When humidity is high, coatings are exposed to greater amounts of water vapor, which affects drying, when there is more moisture in the air, it takes longer for the water in acrylic coatings to evaporate, which amounts to longer dry times. Running a dehumidifier while you paint can help with this.

Room Ventilation

Paint dries slower in a room with poor air circulation. If exterior temperatures are moderate and humidity is low, open a window. If you don’t want to open a window, you can run a fan to increase air circulation.

Painting Technique

Applying varnish too thickly or adding a second coat before the first coat is fully dry will extend how long it takes for varnish to cure. Coatings with a thicker film build may lengthen the time needed for the water to evaporate, prolonging dry time and preventing the paint from drying correctly. On the other hand, applying too thin of a coat can limit the paint's performance and not allow for proper adhesion to the surface.

Applying varnish to uncured paint films

During the curing process of water-based coatings the carrier, water, escapes though the coating, together with small quantities of chemicals used by the paint film to cure.
These curing chemicals may affect the curing system of the varnish.
This will cause the film to be susceptible to water/chemicals and will lower its abrasion resistance.
The varnish will initially appear normal and the failure only becomes evident when exposed to liquids/abrasion.

Concrete/solid floors
Solid floors can remain at low temperatures for long periods, dramatically increasing the drying time and of course the curing time of paint and varnishes.