

Drawdown Basics



Why do I need a drawdown chart?

Most coatings will mimic the surface to which they are applied. For example, the perceived color of a coating which is not entirely opaque may be affected by the color of the substrate. A high gloss paint applied to a matte surface may result in a lower gloss finish. A paint applied to a bumpy surface will exhibit a rough or orange peel appearance. Therefore, to provide the highest level of confidence in test results, it is advisable to select a standardized substrate which guarantees the consistency of color, gloss and surface smoothness, among other physical characteristics. Leneta drawdown charts, typically made from high quality 14 mil thick paperboard, sealed with a clear, impervious topcoat, is a substrate which provides these properties, consistently and reliably.

A secondary benefit of using drawdown charts is that their relatively light weight and bulk allow for convenient shipping and storage of drawdowns (i.e., drawdown charts on which paint has been applied or drawn down).

Which drawdown chart or card do I need?

A number of factors can influence the selection of a drawdown chart or card. These can range from historical usage to international specifications. Selecting a chart because “we’ve always used that one” may have credibility if you want to compare current to earlier testing, but care should be taken to ensure the original selection was appropriate. If you are following an international test method and it specifies the product code (for example, ASTM D1653 specifies Leneta Form NWK), you use what is specified.

Without such specific guidance, it is important to consider what parameters are to be evaluated. For example, if evaluating hiding power or contrast ratio, a black and white surface is typically needed. If creating a color sample for a customer is your goal, an all-white sheet may be more appropriate.

Another consideration is whether visual or instrumental evaluation is to be used. For visual evaluation, increasing the frequency of black/white interfaces may prove helpful. Zebra or diamond striped charts and checkerboard charts are designed with this purpose in mind. If instrumental measurements are to be taken, it is important to have areas of sufficient size to accommodate the instrument's aperture.

Size can be another determining factor in selecting a chart. Larger charts allow for side-by-side drawdowns for direct comparison between a new batch and an established standard. Larger Plain White Charts with edge-to-edge drawdowns are ideal for evaluating color in an architectural setting. Smaller charts may be needed to conserve storage space for completed tests.

When doing a physical test of coatings, it is usually a good idea to minimize variations in the substrate. To that end, most testing starts with **sealed** test charts. Leneta's proprietary UV cured clear topcoat provides a uniform and consistent surface that is impermeable to water and solvent borne coatings plus offering a superior film forming surface. The clear topcoat prevents applied coatings from being absorbed into the paper so that true color and gloss can be evaluated.

For some applications, **unsealed** charts are preferred. Unsealed charts are useful for evaluating coatings over a semi-porous surface, which may be more representative of applications in the field. Unsealed charts may also be preferred for coatings which do not wet a sealed surface adequately. Leneta offers charts which are completely unsealed and charts with a combination of sealed / unsealed areas (see Penopac Charts).

While drawdown charts are most commonly used for testing paint, they also have proven useful for evaluating other products such as cosmetic materials, printing inks and food and pharmaceutical colorants. Regarding printing inks, flexographic and gravure inks frequently require sealed charts. Offset inks and press varnishes are commonly tested on unsealed charts or on Leneta Printing Ink Drawdown Sheets, which are thin coated and uncoated papers representative of typical surfaces on which inks are printed.

Leneta charts are 14 mils (0.35 mm) thick. This thickness, along with other paper characteristics, makes for a chart which is flexible but at the same time has sufficient stiffness for most testing. If the coating being tested is very dense or viscous, selecting a more rigid substrate, such as 20 mil (0.50 mm) thick Leneta Brushout Cards, may be a good idea.

What is the correct way of using a drawdown chart?

For best results, drawdown charts should rest on a smooth, level surface, such as the Leneta GDP-1 Glass Drawdown Plate or the Leneta VP-0912 Vacuum Plate. This prevents bumps or irregularities in the supporting surface from affecting the uniformity of the drawdown. A uniform film of controlled thickness is then drawn down, using a blade type or wire bar applicator. The drawdown bar or applicator is placed horizontally across the top of the chart and a small pool of paint is poured in front of it. The ends of the applicator are firmly grasped and pulled through the paint in a smooth, gradual motion towards the bottom of the chart, leaving behind a smooth, uniform film.



To speak with an expert, you can call us at **201-847-9300** or email us at [**sales@leneta.com**](mailto:sales@leneta.com). You can also visit our contact page on our website [**www.Leneta.com**](http://www.Leneta.com) and fill out the inquiry form. We will get back to you as soon as possible.

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