



How to Mix Ink

The following instructions reference the Pantone (PMS) Ink Mixing System, but should work equally well with any other mixing system. There are two formulas listed in the Pantone Ink mixing guide: a parts formula and a decimal formula. If you have experience mixing ink with a triple-beam balance scale you are already familiar with the parts formula. When using the QCS scale, however, you will use the decimal formula printed just to the right of the parts formula. The decimal formula is better suited for use with a digital scale as well as affording greater accuracy.

Also note that we will be using the numeric values visible in the QUANTITY display window instead of the WEIGHT window. This is because the QUANTITY window can display much finer resolutions than the WEIGHT window. Realize, however, that the QUANTITY window can not show decimal points or leading zeros. You may refer to the WEIGHT display as a rough reference point, but use the QUANTITY display for the actual weight readings.

We do not recommend mixing ink directly on the scale platter. You will need a suitable mixing "surface" such as a sheet of 1/4" safety glass (with smooth, rounded edges) Lexan plastic, or a used metal printing plate trimmed to a workable size. You may wish to use the supplied plastic shield to protect the scale console from ink drizzle. You may also protect the scale with plastic food wrap or shrink wrap film, but do not drape the material over the scale platter or allow it to touch it.

Turn the scale on and make sure all the displays read "0". Place your mixing medium on the scale platter and depress the T key. The WEIGHT, UNIT WEIGHT, and QUANTITY display windows should display "0". Now key-in the appropriate value based the quantity desired:

Desired Ink Quantity	Unit Weight Values
To mix 1 pound of ink	Key in " 1 " and press the UNIT W.T. key
To mix 1/2 pound of ink	Key in " .5 " and press the UNIT W.T. key
To mix 1/4 pound of ink	Key in " .25 " and press the UNIT W.T. key

The best way to illustrate ink mixing is by walking you through a sample formula. Let's mix 1/2 pound of PMS 185 as an example. Place your mixing surface on the scale and press the T key. All the scale displays will read "0". (continued...)

The decimal formula for PMS 185 is: 75.0 % Warm Red and 25.0 % Rubine. The first step is to “remove” the decimal points from the formula, i.e. Warm Red = “750” and Rubine = “250”. Next, key in “.5” (don’t forget the decimal) and press the UNIT W.T. key. Add Warm Red ink onto your mixing surface until the QUANTITY window reads “750”. Press the **T** key. Add Rubine Red ink until the QUANTITY window reads “250”. Remove the ink mixing surface from the scale and mix. (**NOTE:** Place each additional color NEXT to the previous ink, not on top. Should you add too much ink it will be easier to remove the excess without intermixing with the other colors.)

There are a few formulas which call for a quantity of ink so small that the weight falls below the scale’s sensitivity rating. An example would be PMS 113 whose formula calls for 12.4 (124) Pantone Yellow; .4 (4) Pantone Warm Red, and 87.2 (872) Transparent White. The “problem” in this formula is the Warm Red; the small amount of ink required will not register on the scale’s display.

In these rare instances two different workarounds are available. The first approach requires that you: A.) Start the mix with the largest quantity of ink in the formula and end with the least, **and**, B.) Do not press the **T** (tare) key between ink additions. In the case of PMS 113, Transparent White (872) would be first to be dispensed, followed by Yellow (124), and finally Warm Red (4). Additionally, because you will not be taring out each individual ink weight, you will need to calculate the accumulated subtotals in advance. In the case of PMS 113, the first reading in the QUANTITY window will be “872”, followed by “996” (872 + 124), and finally “1000” (872 + 124 + 4). Although the scale can not display extremely small weights, it has no difficulty registering such a small quantity of ink when it is added to a larger weight *already on the scale*.

The second workaround utilizes a two-color “base ink” formulated at a 10-to-1 ratio. A small amount of this special mix is prepared first and substituted for the formula color that falls below the sensitivity threshold. Follow these steps for our PMS 113 example: Place your mixing surface on the scale platter and depress the **T** key. All the display windows should display “0”. Key in “1” and press the UNIT W.T. key. Add Warm Red until the QUANTITY display reads “10”. Press the **T** key. Add Pantone Transparent White until the QUANTITY window displays “100”.

Mix these two inks together. You have now created about a tenth of a pound of a base ink which will be substituted for the Warm Red in the final formula. Since the base ink has been formulated at a 10-to-1 ratio, you will need to use ten times as much ink as called for in the original formula.

The revised formula for PMS 113 now is: Pantone Yellow = 124, **Warm Red Base = 40**, and Transparent White = 872.

Require Support? Call 1-800-831-4175

QTech Scales • 129 Cramer Road, Jewett, NY 12444 USA

1-800-831-4175 • 1-518-734-6514 • Fax: 518-734-6497

Email: info@QTechProducts.com • Web Site: www.QTechScales.com