

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

CERTIFICATE

FOR

STANDARD SAMPLE 300

TOLUIDINE-RED-TONER

Purpose of Standard.

This standard sample of toluidine-red-toner has been established for use as a standard for Mass Color, Tinting Strength and Character of Tint only, for purchases made under Federal Specification TT-T-562, "Toluidine-Red-Toner; Dry (Paint Pigment)".

Properties of Standard.

This material is an organic red pigment usually produced by diazotizing 2-nitro-p-toluidine (m-nitro-p-toluidine) and coupling with betanaphthol. When bottled, the sample contained less than 0.5 percent of moisture, less than 0.5 percent of ash, and had a pH of 7.0 as determined by the method given in Federal Specification TT-T-562. These values are not certified and are given only as matters of general information. A spectrophotometric record of the color of this standard is on file at this Bureau. The standard will be protected from dust, light, and moisture, and checked at intervals, for color stability. The color of the standard is the bright, medium shade of toluidine toner. Federal Specification TT-T-562 permits other shades including the dark or deep shade of toluidine toner; the dark shade being a more recent development. If these shades are in question, it will be necessary (as stated in the specification) for the buyer and seller to agree on a sample for mass color and tinting strength, in lieu of this standard sample.

Methods of Test.

(a) Mass Color of Pigments.

The following is abstracted from Federal Specification TT-P-141b, Method 421.1, except with regard to the weight of pigment and volume of oil which is given herein:

Transfer 0.500 g of the test sample and of the standard rub up separately on a glass plate or stone slab, using the same amount (0.5 ml) of the same raw linseed oil in each case. The raw linseed oil shall conform to Federal Specification TT-O-369. For regular control work, the use of a burette is recommended for measuring the oil used, instead of weighing, because of the simplicity, speed, and accuracy obtainable with the burette. Be sure to allow sufficient time for the oil to drain to its true level. In case of doubt and dispute over any color, all portions shall be weighed. The weight of 0.5 ml of the specified raw linseed oil is about 0.467 g.

Mix the oil and pigment on the rubbing slab to a paste with a clean steel (not nickel plated) spatula. When all of the dry pigment is worked up by means of the spatula, spread it over an area approximately 4 inches wide and 12 to 15 inches long. Rub up the paste with a glass muller, the grinding face of the muller to be 2 3/4 to 3 inches in diameter and kept sharp by lightly grinding with turpentine and No. 303 optical emery, or its equivalent.

In counting the rubs given a color, one stroke up and one stroke back is considered 1 rub. Allow the muller to travel up one side and back the other side, twisting the muller slightly at the top and bottom of each half stroke to help work in the pigment. After each 30 rubs, "pick-up" the paste with the spatula by scraping the face of the muller and gathering the paste on the slab into a daub. Continue the mulling until the paste is given 150 rubs.

When the mulling is completed, place the sample and the reference standard in juxtaposition on a bright tin or clear glass panel. Make the daub of each about 1 inch wide and 2 inches long and draw a scraper lightly over the pastes to even off the ridges and to present both daubs on an even plane. Mass color shall be judged immediately. If glass is used, observe the rub-outs from the top and not through the glass panel.

(b) Tinting Strength and Character of Tint of Pigments.

The following is also abstracted from Federal Specification TT-P-141b, Method 422.1:

Weigh 0.1 g of the mulled color paste from the slab (see Method for Mass Color of Pigments) and counterbalance with the reference standard pigment paste. Then add 5.0 g of the "reduction paste" (zinc oxide paste in oil which conforms to Federal Specification TT-Z-301) to the sample and the reference standard. Thoroughly mix each of the pastes on the flat glass or slab only until no more streaking is noticeable.

Place the sample and reference standard in juxtaposition on a bright tin or clear glass panel. Make the daub of each at least 1 inch wide and about 2 inches long and draw the scraper lightly over the pastes to even off the ridges and to present both daubs on an even plane. Judge the color immediately. If glass is used, observe the colors from the top and not through the glass panel.

If the sample differs from the standard in that it is of a more purplish red or a more yellowish red, it does not meet the specification in character of tint. If it shows the same character of tint and the rub-out is as dark as or darker than the standard, it meets the specification with regard to both character of tint and tinting strength.

(c) Mass Color of Pastes.

Prepare a paste with the standard pigment in the same manner as for the determination of Mass Color of Pigments except that the percentage of pigment shall be the same as in the sample of paste being tested. Make the color comparison immediately in accordance with the procedure described in section (a).

(d) Tinting Strength and Character of Tint of Pastes.

Follow the same procedure as outlined for pigments except that approximately 0.1 g of the sample paste (containing volatile thinner) should be weighed first by difference, its exact weight recorded, and the same weight of paste prepared from the standard pigment and linseed oil then taken for comparison.

Recommendations.

This standard sample should be kept tightly covered and protected from dust, light, and moisture when not in use. PROTECTION FROM LIGHT IS VERY IMPORTANT.

(Signed) LYMAN J. BRIGGS, Director.

Washington, D. C.
May 6, 1944