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DEPARTMENT OF COMMERCE

BUREAU OF STANDARDS

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# UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR INK, DRAWING, BLACK WATERPROOF

## FEDERAL SPECIFICATIONS BOARD SPECIFICATION No. 265a

[Revision Promulgated June 10, 1927. Supersedes Federal Specifications Board Specification No. 265]

**This specification was officially promulgated by the Federal Specifications Board on December 6, 1924, for the use of the departments and independent establishments of the Government in the purchase of black waterproof drawing ink.**

[The latest date on which the technical requirements of this revision shall be come mandatory for all departments and independent establishments of the Government is September 10, 1927. They may be put into effect, however, at any earlier date, after promulgation.]

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## I. GENERAL SPECIFICATIONS

There are no general specifications applicable to this specification.

## II. TYPE

The ink shall be of one type only.

## III. MATERIAL AND WORKMANSHIP

See Detail requirements.

## IV. GENERAL REQUIREMENTS

The ink shall be a permanent aqueous suspension of carbon black with the ingredients necessary to prevent separation, settling out, or granulation of the pigment, and to make a waterproof line on drawing paper or tracing cloth.

## V. DETAIL REQUIREMENTS

1. Permanence.—No settling out, separation, or granulation of the pigment. See VI, 2, (*a*).

2. Consistency.—Must not flow too freely nor too slowly from the pen, nor clog the pen, nor show gumminess or stickiness when lifting the pen. See VI, 2, (*b*) and (*d*).

3. Drying.—Must not dry too rapidly in the pen, nor too slowly on paper or tracing cloth. See VI, 2, (*b*) to (*d*).

4. Color and Opacity.—The lines must be intensely black and absolutely opaque. See VI, 2, (*e*).

5. Fading.—Shall show no fading when exposed to direct bright sunlight for 96 hours, or to arc or ultra-violet light for 48 hours. See VI, 2, (*f*) and (*g*).

6. Effect of Solvents.—No running or smearing when lines are soaked in water, gasoline, benzene (benzol), and carbon tetrachloride. See VI, 2, (*h*).

7. Moldiness.—The ink shall contain a sufficient amount of a suitable antiseptic to prevent the growth of mold. See VI, 2, (*i*).

## VI. METHOD OF INSPECTION AND TESTS

1. Method of Taking Samples.—A three-fourths ounce sample of the ink in an original unopened container bearing all of the manufacturer's marks shall be sent to the testing laboratory.

2. Tests.—(*a*) After standing undisturbed for two weeks in a closed container there shall be no deposit on the sides or bottom of the container, and no evidence of separation or granulation of the pigment.

(*b*) A clean drawing pen shall be so adjusted that the slit is approximately 0.006 inch wide. The pen shall be filled with enough ink to draw more than five lines, each 6 inches long, on 100 per cent rag bond paper, substance No. 20. Immediately after filling, one line shall be drawn with the pen held in a vertical position and so that the slit is as nearly as possible parallel with the edge of the ruler. The pen shall be kept in this position throughout the test. One minute later a second line shall be drawn. In all, five lines shall be drawn in the same way at one-minute intervals. The ink shall be considered unsatisfactory if it is not possible to draw five lines in this manner.

(*c*) Clean the pen, adjust the slit so that it is approximately 0.012 inch wide, and fill it with the same amount of ink as in the preceding test. Lines shall then be drawn in the usual way on drawing paper and on tracing cloth which has been first thoroughly rubbed with a suitable powder. All excess powder shall be wiped off. The ink shall flow freely and smoothly from the pen, but not so rapidly that drops flow out before the pen is brought into contact with the cloth or paper. Five or six lines, each about 2 inches long, shall be drawn close together and, before they are quite dry, as many others shall be drawn across them at right angles. There shall be no evidence of blurring at the intersections of the lines.

(*d*) Draw four or five lines, each at least 8 inches long, on tracing cloth and drawing paper. Four minutes after the lines have been drawn they shall be rubbed gently with the dry finger tips. There shall be no blurring or smudging.

(*e*) When the lines drawn in (*d*) have been allowed to dry for one hour, they shall be examined for color and opacity. They shall be of an intense black color, and shall be absolutely opaque when held close to a bright light. The presence of fine cracks which can be seen when the lines are examined with a lens against a bright light is not to be considered a cause for rejection, unless they are so large or numerous as to make the lines appear nonopaque to the unaided eye.

(*f*) The paper and tracing cloth shall be cut into inch-wide strips at right angles to the lines drawn in (*d*). Some of the strips shall be kept away from light and fumes, and others used for making the following tests.

(*g*) After exposure to direct bright sunlight for 96 hours, or at a distance of about 10 inches from an arc or ultra-violet light for 48 hours, the lines shall show no fading.

(*h*) Separate strips shall be soaked in water, gasoline, benzene (benzol), and carbon tetrachloride for 15 minutes at room temperature. The lines shall show no running or smearing.

(*i*) Five cubic centimeters of the sample, in a 50-cubic-centimeter beaker, shall be inoculated with spores of the common green mold and then kept in a moist chamber for two weeks at room temperature. At the end of that time the ink shall show no growth of mold, no thickening, and no granulation or separation of the pigment.

## VII. PACKING AND MARKING OF SHIPMENTS

Shall be in accordance with the best commercial practice unless otherwise specified.

## VIII. NOTE

It has been found that a popular brand of two-edged safety-razor blades can be used as a gauge for adjusting the drawing pen so that the slit is approximately 0.006 inch wide for Test VI, 2, (*b*). With two blades the slit can be adjusted for Test VI, 2, (*c*).

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