

Navigation, Display
Multicolor Microchart/Map Transparencies

FSC 6605

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1. GENERAL:

1.1 Scope:

This standard covers the general requirement for the preparation and production of multicolor microchart/map transparencies for use with optical projection viewing devices. It defines the physical and photographic characteristics of the output transparencies. These transparencies shall exhibit sufficient fidelity so that when projected back to the original size, the projected image shall be an acceptable facsimile of the original chart.

1.2 Application:

The transparency described in this standard is intended for use with optical projection display systems. The projected microchart/map image may be used in conjunction with automatic data processing systems, cathode ray tube (CRT) display or other auxiliary data sources to present a complete static and dynamic display of the operational situation. These transparencies may be used with airborne navigation, land based, or shipboard projection systems.

2. APPLICABLE DOCUMENTS:

- 2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein.

MILITARY HANDBOOK

MIL-HDBK-25 Glossary of Photographic Terms

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARDS

ANSI PH 1.25	Safety Photographic Film, Specifications for
ANSI PH 1.29	Determining the Curl of Photographic Film, Methods for
ANSI PH 1.31	Determining the Brittleness of Photographic Film, Method of
ANSI PH 1.32	Determining the Dimensional Change Characteristic of Photographic Film and Papers, Methods for
ANSI PH 2.19	Density Measurements, Geometric Conditions for Transmission Density

(Applications for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018)

AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM) STANDARDS

ASTM D 882 Tensile Properties of Thin Plastic Sheeting, Test Methods for

(Applications for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103)

3. DEFINITIONS:

3.1 Terms:

The definitions given herein are those most applicable to this document and to the specifications prepared in accordance with this standard. For the purpose of this standard, all photographic terms not defined herein shall be in accordance with MIL-HDBK-25.

3.1.1 Sensitometric Terms:

3.1.1.1 Density: The light-absorbing quality of a photographic image. It is the logarithm of the optical opacity, where the opacity is the ratio of the incident light to the transmitted or reflected light. It varies with the use of scattered or specular light.

3.1.1.1.1 Total Density: The sum of the dye deposit density and the base plus fog density as defined herein.

3.1.1.1.2 Fog Density: That which is produced on a piece of processed film by causes other than exposure to light such as chemical processes during development.

3.1.1.1.3 Base plus Fog Density: For a Negative Film - the total density of processed film that has not been exposed to light prior to development; For a Reversal Film - the total density of processed film that has received sufficient exposure to light, prior to development, such that any additional exposure will not produce a lower density.

3.1.1.1.4 Net Density: The difference between total density and base plus fog density (applicable to negative color films).

3.1.1.2 Gamma: A numerical designation for the contrast of a photographic material as represented by the slope of the straight-line portion of the characteristic curve. The Gamma is numerically equal to the tangent of the angle which the straight-line portion makes with the base line. A Gamma of 1 in a negative signifies that the range of density in the negative is the same as the range of light values in the subject photographed; a Gamma of .5 signifies that the range of density in the negative is one-half of the range of the subject. Emulsion characteristics and development procedures directly affect the Gamma value.

3.1.1.3 Average Gradient: The slope of the straight line drawn between two specified points on the H and D curve (Refer MIL-HDBK-25).

3.1.1.4 Emulsion Number: A number assigned by the manufacturer to identify a specific film production run.

3.1.2 Physical Terms:

3.1.2.1 Physical Defects: Scratches, pinholes, or other physical imperfections including streaks, spots, areas of uneven coating, bubbles, lap marks, lumps, foreign materials, etc.

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- 3.1.2.2 Film Direction: The direction parallel to its forward movement in the base casting/extrusion machine. This is also termed "grain" or "machine direction." The width direction also termed "cross direction," shall be at right angles to the film direction in the plane of the sheet.
- 3.1.2.3 Humidity Coefficient of Expansion: The average change in dimension per unit distance per one percent change in relative humidity.
- 3.1.2.4 Thermal Coefficient of Expansion: The average change in dimension per unit distance per one degree Centigrade or Fahrenheit change in temperature.
- 3.1.2.5 Dimensional Change Due to Processing: The permanent dimensional change caused by the wetting and drying of the sensitized material during photographic processing. The amount of change is obtained by measuring the processed and dried film after it has reached equilibrium in an atmosphere having the same relative humidity and temperature values as those which existed during the measuring of unprocessed film. The amount of change in film dimensions is expressed as a percentage.
- 3.1.2.6 Dimensional Change Due to Processing Plus Aging: Permanent dimensional changes occur as a result of processing plus aging of the processed film. It is measured after the processed, aged film has reached equilibrium in an atmosphere of the same relative humidity and temperature, as that used in the pre-measurement conditioning of the unprocessed film. This change is expressed as a percentage.
- 3.1.2.7 Differential Dimensional Change: The difference between the dimensional changes of the material in the two principal directions (machine and cross).
- 3.1.2.8 Brittleness: That property of the film which causes it to crack, break, or fail when deformed by bending.
- 3.1.2.9 Tensile Strength: The force, applied parallel to the plane of the film in tension, required to rupture a sample of film of specified width, length, and thickness under specified conditions of loading.
- 3.1.2.10 Total Thickness: The thickness of the end product shall include the emulsion and the emulsion support, plus any backings.
- 3.1.2.11 Curl: The deviation from flatness of the film plane. A deformation caused by dimensional difference between the emulsion layer and the support. It results from changes in moisture content of the emulsion layer and support because of variations in relative humidity of the atmosphere.