



# Standard Terminology Relating to Thermal Imaging Products<sup>1</sup>

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## 1. Referenced Documents

### 1.1 *ASTM Standards*:<sup>2</sup>

**F1405 Test Method for Determining the Dynamic Thermal Response of Direct Thermal Imaging Products—Atlantek Method**

**F1444 Test Method for Determining Dynamic Thermal Response of Direct Thermal Paper-Label Printer Method**

**F1445 Test Method for Determining Static Thermal Sensitivity of Direct Thermal Media**

## 2. Terminology

**activation temperature**—temperature which generates an optical density of 0.20.

**active coat**, *n*—a coating layer which contains the primary image (color) forming ingredients.

**antioxidant**—see **stabilizer**.

**antistat**—a chemical additive, generally added to the back side or printhead side of thermal products, which enhances the conductivity of the coating, allowing static electric charges to be bled off during the production processes or during the operation of the product in a machine.

**background**, *n*—a measure of the reflectance or density of the unimaged portion of a thermal paper; typically measured using a densitometer, reflectometer, or opacimeter.

**basecoat**, *n*—a coating applied to a base substrate to produce a level surface for the application of the active coat; may also function to improve the heat/energy transfer of the active coat layer.

**binder**, *n*—a material employed to bind the image-forming materials to the substrate.

<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.01 on Nomenclature and Definitions.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

**DISCUSSION**—Commonly employed materials include polyvinyl acetate, polyvinyl alcohol, starch, and styrene butadiene polymer dispersions.

**color former**—see **leuco dye**.

**core**, *n*—a paper, plastic, or fiber core upon which the thermal product is wound.

**developer**, *n*—acidic materials which react with leuco dyes to form color.

**DISCUSSION**—Typical developers include Bisphenol A, TGSA, D8, and benzyl paraben.

**direct thermal imaging product**—paper, film, or other substrate upon which a coating is applied; the imaging components consist of a color former, a developer, a sensitizer and antioxidants which react to form an image when heated from a thermal printhead.

**direct thermal paper**, *n*—paper coated with a heat-reactive coating, which changes from a colorless form to an intense colored state upon contact with a thermal printhead.

**direct thermal product**, *n*—substrate coated with a heat-sensitive formulation for the purpose of creating an image when heat is applied from a thermal printhead.

**D2T2**, *n*—abbreviation for **dye diffusion thermal transfer**.

**dye sublimation**, *n*—an imaging process from thermal dye ribbons, which employ selected organic dyes, and have characteristics different from an imaging process using pigmented materials employed in thermal transfer wax ribbons.

**dynamic thermal response curve**, *n*—graphical representation of the response characteristic of a thermal printing system over a given range of print energies; the *y*-axis is optical density and the *x*-axis is print energy (watts/dot or millijoules) or energy density (millijoules/square millimetres). **(F1444, F05)**

**environmental resistance**, *n*—a measure of a direct thermal product's ability to resist the effects of exposure to environmental contaminants on either the imaged or unimaged areas.

**DISCUSSION**—Typical contaminants may include water, oils, alcohol, light, or heat/humidity.