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Standard Terminology Relating to Electrostatic Copying¹

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^{ε1} NOTE—Terms were added editorially in November 2001.

1. Scope

1.1 This set of definitions is intended for use by all parties who use, sell, manufacture, test, or develop electrostatic copy machines so that they will have a common basis for communications.

2. Referenced Documents

2.1 ASTM Standards:

F 1156 Terminology Relating to Product Counterfeiting Protection Systems²

F 1531 Test Method for Comparing Printer or Copier Cartridges²

3. Terminology

3.1 Definitions:

aerosol development—development in which the toner is carried to the field of the electrostatic image by means of a suspending gas.

apparent surface resistivity—the surface resistance between two electrodes forming opposite sides of a square on the surface of the copy substrate or the electrical equivalent.

archival quality—the properties of a copy necessary to retain information of permanent value under specified conditions of storage and use.

background—toner particles in the non-image areas of an electrostatic print.

background potential—see **residual potential**.

base stock—see **conductive base stock**.

base weight—the weight of a specified area of paper stock expressed in grams per square metre or in pounds per ream, where the size and number of sheets per ream may vary for each particular grade of paper. Common ream sizes used in electrostatic papers are:

25 by 38 in. by 500 sheets (3300 ft²)

24 by 36 in. by 500 sheets (3000 ft²)

17 by 22 in. by 500 sheets (1300 ft²)

black density—see **image density**.

binder—the resinous adhesive component of a pigmented coating composition.

blasting—see **feathering**.

blocking—the tendency for coated sheets to stick together under pressure.

bridging—combination of peaks and smudges that may close or partially close the loop of a character (F 149).

caliper—the thickness of a sheet expressed in millimetres or in thousandths of an inch.

carrier—that substance in a developer that conveys a toner, but does not itself become a part of the image in the finished print. In a liquid developer the carrier may be called a dispersant.

cascade development—development in which dry toner and carrier are drawn over an electrostatic image by gravity.

catcher blade—(also known as a recovery blade or slip sheet), a strip of semi-rigid plastic material that guides the waste toner removed from the OPC photoreceptor into the toner waste bin.

charge acceptance—the apparent surface voltage present on an electrostatic recording medium immediately after charging.

charged area development—(CAD), a process in electrostatic copying where the photoconductive element is charged with a charge of the opposite sign as that of the toner. A light source is used to discharge all areas on the photoconductor that are NOT to receive toner to form the image. The toner is attracted to the non-discharged areas of the photoconductor when the latent electrostatic image is developed.

charging—the process of establishing an electrostatic surface charge of uniform density on an insulating medium.

cloud development—see **aerosol development**.

coated paper—paper which has one or both surfaces covered with a substance to produce certain desired properties for use in specific electrophotographic processes.

coated paper copying—a form of direct electrophotographic copying.

coating weight—the wet or dry weight of coating material applied to a paper or other substrate expressed as grams per square metre or pounds per specified ream.

conductive base stock—paper stock intended as a substrate for electrostatic coating with surface or volume conductivity

¹ This terminology is under the jurisdiction of ASTM Committee F05 on Business Copy Products and is the direct responsibility of Subcommittee F05.01 on Nomenclature and Definitions.

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² Withdrawn, see 2000 *Annual Book of ASTM Standards*, Vol 15.08.



over a range of relative humidities controlled by special treatment.

copying—the act of producing an image on a document or other receptor media which is a duplication of the image of another document, such as by a photographic, xerographic, or facsimile process or by carbon or carbonless papers.

corona—(1) the visible glow produced by ionized air in the path of high-voltage discharge.

(2) the type of discharge and the device from which the discharge emanates.

corona charging—charging by means of gaseous ions generated by a corona device.

dark adaptation—conditioning of photoelectrostatic copying papers in the absence of light to permit the recovery of photoconductive properties.

dark decay—loss of apparent surface voltage in the absence of light.

dark decay rate—the rate of loss of apparent surface voltage per unit time in the absence of light.

density—see **image density**.

depletion—decrease of toner concentration in a developer composition characterized by low-image density.

developer—the material or combination of materials that renders visible a latent electrostatic image when brought into intimate contact with it. Electrostatic developers can be either liquid or dry and can consist of a toner and a carrier.

developer roller—(also magnetic roller or mag roller), a cylinder built into the copier toner cartridge or printer toner cartridge intended to present correctly charged toner from the toner reservoir to the charged areas of the photoreceptor.

development—the process of converting a latent electrostatic image into a visible image.

direct development—see **positive development**.

direct electrophotographic copying process—an electrophotographic copying process in which the photoconductor is an integral part of the final copy.

discharged area development (DAD)—a process in electrostatic copying where the photoconductive element is charged with a charge of the same sign as that of the toner. A light source is used to discharge only those areas that are to receive toner to form the image. In the development process, the charged background areas repel the like charged toner to the discharged areas on the photoconductor.

dispersant—the material, usually an organic solvent, in a liquid developer system that conveys toner particles, but does not itself become a part of the image in a finished print. (See also **carrier**.)

doping—the addition of foreign species into a photoconductive material to modify its semiconductor properties such as light sensitivity, response times, and dark conductivity.

dragging—a fringe effect attached to the trailing edge of the developed electrostatic image. (See also **tailgating**.)

dry carrier toner—dry powdered toner mixed with bead or granular particles as a carrier to form a developer.

dry time—the time that a copy must reside in the copy tray before it appears to be dry.

duplex copy—a sheet with copied images on both sides.

duplexing—in a copy system, the process by which images are

placed on both sides of the copy sheet.

dusting—the developer/toner particles deposited in and around the machine on other than the electrostatic copy.

dye sensitizing—the incorporation of dye-stuffs into a photoconductive coating to alter its spectral response.

edge effect—an image defect characterized by a low density or poor fill-in of solid areas coupled with a higher density outline.

edging—the lateral current flow during exposure in the electrostatic copy process.

electro-negative developer—a developer containing negatively charged toner particle.

electrophotographic copying process—a process in which a copy of an original document results from the combined action of light and externally applied electric forces.

electrophotographic material—photoconductor suitable for application in photographic processes.

electro-positive developer—a developer containing positively charged toner particle.

electrostatic copying process—a process in which a copy of an original document results from charged particle development of an electrostatically formed image.

electrostatics—the science of forces and fields of electric charges in a state of rest.

exhaustion—see **depletion**.

exposure latitude—range of light or time settings over which an acceptable copy can be produced.

fatigue—any degradation in electrophotographic properties of a photoconductive material caused by repetitive charging, light exposure, or other operation in the imaging process.

feathering—an undesirable thread-like deposit extending radially from the edge of an image (F 221).

field adaption—the forced recovery of excited electrons (as in dark adaption) by means of an externally applied electrical field such as a charging corona.

fixing—the process of rendering a developed image permanent.

flare—extraneous light in the dark area.

flare decay—image contrast loss due to flare.

fog—see **fatigue** and **pre-exposure**.

fringe effect—toner deposition in non-image areas adjacent to the image. Heading and tailing are fringe effects.

fur brush development—development of electrostatic images by transporting the toner to the image area through the use of fur-like fibers.

fusing—see **heat fixing**.

ghosting—an undesired repeat image in either an area that is printed or an area that should not contain the ghost image. A positive ghost image is an undesired image created in a white area. A negative ghost is a lighter image created in a printed area that is seen by the difference in contrast.

halo effect—a condition characterized by an unusually clean background region at the boundary of the image areas.

heading—a fringe effect appearing on the leading edge (relative to copy machine feed direction) of the developed electrostatic image.

heat fixing—the process of making a developed image permanent by heating.

