IMBIBITION: A measure of the liquid or water-holding capacity of a textile material.

IMMEDIATE ELASTIC DEFORMATION: Recoverable deformation that is essentially independent of time, i.e., occurring in (a time approaching) zero time and recoverable in (a time approaching) zero time after removal of the applied load.

IMPACT RESISTANCE: 1. The resistance of a material to fracture by a blow, expressed in terms of the amount of energy absorbed before fracture. 2. In yarn or cord, the ability to withstand instantaneous or rapid rate of loading.

IMPACT STRENGTH: IMPACT RESISTANCE.

IMPREGNATED FABRIC: A fabric in which the interstices between the yarns are completely filled, as compared to sized or coated material where the interstices are not completely filled. Not included in the definition is a woven fabric constructed from impregnated yarns, rather than one impregnated after weaving.

INDEX OF REFRACTION: Ratio of the velocity of light in one medium to its velocity in a second medium as the light passes from medium to medium. If a medium is crystalline, the velocity may depend on the direction of the light with respect to the crystalline axes and the substance may have several indexes of refraction, i.e., it may be birefringent. (Also BIREFRINGENCE)

INDIGO: Originally, a natural blue vat dye extracted from plants, especially the Indigofera tinctoria plant. Most indigo dyes today are synthetic. They are frequently used on dungarees and denims.

INDUSTRIAL FABRIC: A broad term for fabrics used for nonapparel and nondecorative uses. They fall into several classes: (1) a broad group including fabrics employed in industrial processes (e.g., filtering, polishing, and absorption), (2) fabrics combined with other materials to produce a different type of product (e.g., rubberized fabric for hose, belting, and tires; fabric combined with synthetic resins to be used for timing gears and electrical machinery parts; coated or enameled fabrics for automobile tops and book bindings; and fabrics impregnated with adhesive and dielectric compounds for application in the electrical industry), and (3) fabrics incorporated directly in a finished product (e.g., sails, tarpaulins, tents, awnings, and specialty belts for agricultural machinery, airplanes, and conveyors). Fabrics developed for industrial uses cover a wide variety of widths, weights, and constructions and are attained, in many cases, only after painstaking research and experiment. Cotton and manufactured fibers are important fibers in this group, but virtually all textile fibers have industrial uses. The names mechanical fabrics or technical fabrics sometimes have been applied to certain industrial fabrics.

INFLATABLE STRUCTURES: Structures opened or enlarged by input of air and, once enlarged, able to retain the air to maintain the distended position.

INFLOW QUENCH: Cooling air for extruded polymer filaments that is directed radially inward across the path of the filaments. The threadline is completely enclosed in a quench cabinet in inflow quenching.

INITIAL MODULUS: The slope of the initial straight portion of the stress-strain curve. The modulus is the ratio of the change in stress, expressed in newtons per tex, grams-force per tex, or grams-force per denier, to the change in strain expressed as a fraction of the original length.

INITIATOR: A chemical added to start a reaction such as polymerization. Unlike catalysts, initiators may be consumed during the reaction.

INSPECTION: The process of examining textiles for defects at any stage of manufacturing and finishing.

INSTRON TENSILE TESTER: A high precision electronic test instrument designed for testing a variety of material under a broad range of test conditions. It is used to measure and chart the load-elongation properties of fibers,
yarns, fabrics, webbings, plastics, films, rubber, leather, paper, etc. May also be used to measure such properties as tear resistance and resistance to compression.

**INTAGLIO:** 1. Printing style in which the design is cut into the surface of the cylinder and is thus below the surface. 2. A lustrous, brocade pattern knitted in a tricot fabric.

**INTENSITY:** 1. The amount of energy per unit (space, charge, time). 2. The brilliance of a color. 3. The brightness of light.

**INTERFACIAL POLYMERIZATION:** Polymerization in which two reactive monomers, each dissolved in different solvents that are mutually immiscible, react at the interface between the two solutions.

**INTERLINING:** A padding or stiffening fabric used in garment manufacture to provide shape retention. Interlining is sandwiched between layers of fabric.

**INTERMITTENT PATTERN:** A pattern occurring in interrupted sequence.

**INTERNAL DYE VARIABILITY:** The change from point to point in dye uniformity across the diameter and along the length of the individual filaments. Affects appearance of the dyed product and is a function of fiber, dye, dyeing process, and dyebath characteristics.

**INTERNATIONAL GRAY SCALE:** A scale distributed through AATCC that is used as a comparison standard to rate degrees of fading from 5 (negligible or no change) to 1 (severe change). The term is sometimes applied to any scale of quality in which 5 is excellent and 1 is poor.

**INTIMATE BLEND:** A technique of mixing two or more dissimilar fibers in a very uniform mixture. Usually the stock is mixed before or at the picker.

**INTRINSIC VISCOSITY:** Ratio of the specific viscosity (R.V.-1) of a solution of known concentration to the concentration of solute extrapolated to zero concentration. Also called the limiting viscosity number. It is directly proportional to the polymer-average molecular weight.

**IONOMER:** A polymer having covalent bonds between the constituents of the long-chain molecules and ionic bonds between the chains.

**ISLANDS-IN-THE-SEA:** A type of component fiber described as multipleinterface or filament-in-matrix. The “island” are fibrils of one or more polymers imbedded in the “sea” (or matrix) consisting of another polymer. The matrix is often dissolved away to leave filaments of very low denier per filament. These fibers have been used in ion-exchange products and in imitation fur products as well as to produce textile products with a different hand.

**ISOTACTIC POLYMER:** A polymer structure in which there is a regular spatial or stereo relationship from one repeat unit to the next. (Also ATACTIC POLYMER, SYNDIOTACTIC POLYMER, and TACTIC POLYMER).

**ISOTHERM:** Constant temperature line used on graphs of climatic conditions or thermodynamic relations, such as pressure-volume relations at constant temperature.

**ISOTROPIC:** Having the same physical properties in every direction in the plane of a fabric. It is related to the random distribution of fibers in nonwoven manufacture.