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**RACK-** A warp-knitting measure consisting of 480 courses. Tricot fabric quality is judged by the number of inches per rack.

**RACKED STITCH-** A knitting stitch that produces a herringbone effect with a ribbed back. It is employed in sweaters for decorative purposes or to form the edge of garments. The racked stitch is a variation of the half-cardigan stitch; it is created when one set of needles is displaced in relation to the other set.

**RACKING-** A term referring to the side-to-side movement of the needles of the needle bed of a knitting machine. Racking results in inclined stitches and reduced elasticity.

**RADIO-FREQUENCY DRYING-** Use of radio-frequency electromagnetic radiation for drying textiles. The application of RF to wet goods results in the selective heating of the water, which has a partial polarity, because the molecule must do work to align in the RF field causing heat generation within the water droplets. Non-polar materials, i.e., fabrics, are unaffected. RF drying is very uniform and energy efficient when airflow patterns through the dryer are properly designed and controlled.

**RAILS-** The metal bars on which the spindles of a dountwister are mounted.

**RAMIE-** A bast fiber similar to flax obtained from the stalk of a plant grown in China, the U.S., and Japan.

**RANDOM-SHEARED CARPET-** A pile carpet with a textured face produced by shearing some of the loops and leaving others intact.

**RAPIER LOOMS-** Looms in which either a double or single rapier (thin metallic shaft with a yarn gripping device) carries the filament through the shed. In a single rapier machine, the yarn is carried completely across the fabric by the rapier. In the double machine, the yarn is passed from one rapier to the other in the middle of the shed.

**RATINÉ-** 1. A plain-weave, loosely constructed fabric having a rough, spongy texture which is imparted by the use of nubby plied yarns. It is made from worsted, cotton, or other yarns. 2. A variant of spiral yarns in which the outer yarn is fed more freely to form loops that kink back on themselves and are held in place by a third binder yarn that is added in a second twisting operation.

**RAVEL-** A type of comb or rail with projecting teeth for separating and guiding warp ends.

**RAVELING-** The process of undoing or separating the weave or knit of a fabric.

**RAW FIBER-** A textile fiber in its natural state, such as silk "in the gum" and cotton as it comes from the bale.

**RAYON FIBER-** A manufactured fiber composed of regenerated cellulose, as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15% of the hydrogens of the hydroxyl groups (FTC definition). Rayon fibers include yarns and fibers made by the viscose process, the cuprammonium process, and the now obsolete nitrocellulose and saponified acetate processes. Generally, in the manufacture of rayon, cellulose derived from wood pulp, cotton linters, or other vegetable matter is dissolved into a viscose spinning solution. The solution is extruded into an acid-salt coagulating bath and drawn into continuous filaments. Groups of these filaments may be made in the form of yarns or cut into staple.

**REAMING-** Further plying of a two-ply yarn with a singles yarn. Reaming is not the same as plying three singles yarns in one operation.

**RECONSTITUTED FIBERS-** Fibers made from recovered waste polymer or blends of virgin polymer and recovered waste polymer.

**RECREATIONAL SURFACES-** Manufactured surfaces providing consistent properties, durability, and special characteristics as needed for the specific application. Included are artificial turf, pool decks, indoor-outdoor carpeting, tennis court surfaces, etc. Most types of constructions (knit, woven, tufted, and nonwoven), and most polymer types find use in this market. The polyolefins are particularly prominent in these applications.

**REDUCTION CLEARING-** The removal of unabsorbed disperse dye from the surface of polyester at the end of the dyeing or printing process by treatment in a sodium hydroxide/sodium hydrosulfite bath. A surface-active agent may be employed in the process.

**REED-** A comb-like device on a loom that separates the warp yarns and also beats each succeeding filling thread against that already woven. The reed usually consists of a top and bottom rib of wood into which metal strips or wires are set. The space between two adjacent wires is called a dent (or split) and the warp is drawn through the dents. The fineness of the reed is calculated by the number of dents per inch.

**REED MARKS-** A fabric defect consisting of warpwise light and heavy streaks in a woven fabric, caused by bent, unevenly packed, or weak reed wires.

**REEL-** 1. A revolving frame on which yarn is wound to form hanks or skeins. 2. The frame on which silk is wound from the cocoon. 3. A linen yarn measure of 72,000 yards. 4. The large wheel in a horizontal warper onto which the warp sections are wound in the indirect system of warping. 5. A spool of large capacity used to wind yarn or wire.

**REELING-** In silk fiber production, the process of unwinding the cocoon.

**REFRACTIVE INDEX-** INDEX OF REFRACTION.

**REFRACTORY FIBER-** Oxide or non-oxide, amorphous or crystalline, manufactured fiber generally used for applications at temperatures greater than 1063°C in both oxidizing and nonoxidizing atmospheres, i.e., Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>.

**REGAIN STANDARD-** . STANDARD MOISTURE REGAIN.

**REGENERATED CELLULOSE-** A material which begins as cellulose but at some stage in the chemical processing takes the form of another chemical compound, then appears again in its completed state as cellulose. Viscose and cuprammonium rayons are regenerated cellulose.

**REINFORCEMENT FABRICS-** . GEOTEXTILES.

**RELATED SHADES-** Colors of similar tone in the same or different depths.

**RELATIVE HUMIDITY-** The ratio of the actual vapor pressure of moisture in air to the saturation vapor pressure at ambient temperature.

**RELATIVE VISCOSITY-** Ratio of the viscosity of the polymer in solution to that of the solvent expressed as time of efflux of the solution divided by the time of efflux of the solvent at constant temperature.

**RELAXED YARN-** A yarn treated to reduce tension and produce more uniform shrinkage or torque. Relaxation produces more uniform dyeing characteristics in regular filament yarns of nylon or polyester.

**RELSET® PROCESS-** A process of Richen, Inc., for continuous heat-setting of carpet or other heavy yarns. Individual ends are continuously fed into a heat-setting chamber and withdrawn into take-up cans or fed to winders.

**REPACK ORDER-** 1. An order requiring special packaging, as for export. 2. A small order for a number of items requiring a breakdown of large cases.

**REPEAT-** The distance covered by a single unit of a pattern that is duplicated over and over, measured along the length of a fabric.

**REPELLENCY-** The ability to resist wetting and staining by oils, water, soils, and other materials.

**RESIDUAL SHRINKAGE-** A term describing the amount of shrinkage remaining in a fabric after finishing, expressed as a percentage of the dimensions before finishing.

**RESILIENCY-** Ability of a fiber or fabric to spring back when crushed or wrinkled.

**RESIN-** 1. A general term for solid or semi-solid natural organic substances, usually of vegetable origin and amorphous and yellowish to brown, transparent or translucent, and soluble in alcohol or ether but not in water. 2. Any of a large number of manufactured products made by polymerization or other chemical processes and having the properties of natural resins.

**RESIN-TREATED-** Usually, a term descriptive of a textile material that has received an external resin application for stiffening or an internal fiber treatment (especially of cellulose) to give wrinkle resistance or permanent press characteristics.

**RESTRAINT SYSTEMS-** An end use for textile fibers; restraint systems are devices such as air bags, seat belts, and shoulder harnesses for passenger protection in automobile, trucks, airplanes, etc.

**RETARDER-** A chemical that, when added to the dyebath, decreases the rate of dyeing but does not affect the final exhaustion.

**REVERSIBLE BONDED FABRIC-** A bonded structure in which two face fabrics are bonded together so that the two sides may be used interchangeable. There are limitations to the fabrics that may be used because of increased fabric stiffness resulting from bonding.

**REVOLVING SPINNING RING-** A driven ring that rotates in the direction of the traveler on a ring spinning frame. Since both the ring and the yarn package turn when this ring system is used, productivity is increased.

**RHEOLOGICAL PROPERTIES-** The properties of viscous substances including polymers that deal with deformation and flow. Includes viscosity and flow rate measurements.

**RIBBING-** A corded effect in a woven fabric that can be either lengthwise, crosswise, or diagonal.

**RIBBON-** Narrow fabric made in several widths and a variety of weaves and used as a trimming.

**RIB KNIT-** A double-knit fabric in which the wales or vertical rows of stitches intermesh alternately on the face and the back. In other words, odd wales intermesh on one side of the cloth and even wales on the other. Ribknit fabrics of this type have good elasticity, especially in the width.

**RICKRACK-** Flat braid in zigzag formation. It is produced by applying different tensions to individual threads during manufacture.

**RIDGY BEAM-** A beam of yarn on which the ends are not evenly distributed across the barrel, causing a profile of peaks (ridges) and valleys. A ridgy beam can give poor removal characteristics.

**RING-** 1. A narrow band around hosiery appearing different from the rest of the hose. Principal causes- variations in yarn size, dye, absorption, or luster. 2. The device that carries the traveler up and down the package in ring spinning.

**RINGER-** 1. On a section beam, ringer is a term used for one or more filaments that have left the parent end; as the beam revolves, the filaments continue to unwind, wrapping around the beam (hence the word "ringer"). The severity of a ringer is dependent upon the number of filaments contained therein at the time the filaments

break. **2.** In slashing, the term ringer is often used when an end breaks on the slasher can, adheres to the can, and continues to wrap around it. This condition should not be confused with ringers on the section beam.

**RING-SPINNING-** A system of spinning using a ring-and-traveler takeup wherein the drafting of the roving and twisting and winding of the yarn onto the bobbin proceed simultaneously and continuously. Ring frames are suitable for spinning all counts up to 150's, and they usually give a stronger yarn and are more productive than mule spinning frames. The latest innovation in ring spinning involves the use of a revolving ring (Also . REVOLVING SPINNING RING) to increase productivity. Ring spinning equipment is also widely used to take-up manufactured filament yarns and insert producer-twist at extrusion.

**RIPENING-** Hydrolysis of cellulose acetate after acetylation to obtain the desired acetyl value. This is generally accomplished by heat and agitation of the acid cellulose acetate solution under controlled conditions of time, temperature, and acidity. Rapid ripening is accomplished by using increased temperature for the reaction.

**RISER-** In textile fabric designing, a colored or darkened square on the design paper which indicates that the warp end is over the filling pick at that point. The opposite of riser is sinker.

**ROLLED ENDS-** **1.** On a section beam, rolled ends are adjacent ends that do not unwind parallel to each other. Rolled ends can be caused by such factors as uneven tension, ridgy beams, and static. **2.** The ends can also roll behind the hook reed in slashing and can tangle with each other, resulting in broken ends and ends doubling.

**ROLLER CARD-** Generally, any type of card in which rollers do the carding. Usually this refers to a woolen card with a main cylinder and four to seven stripper rolls and worker rolls working in pairs.

**ROLL GOODS-** Fabric rolled up on a core after it has been produced. It is described in terms of weight and width of the roll and length of the material on the roll.

**ROLL LAPPING-** A condition in which groups of fibers attach themselves to the drafting rolls instead of following the normal path through the drafting system. These fibers cause the trailing fibers to wind around the rolls and to bread the end down completely. Cleaning of the rolls is required to remove the accumulated fiber.

**ROPE-** **1.** A heavy, strong cord, made from either natural or manufactured fibers or from wire, in a wide range of diameters. Yarns are twisted together to form strands. These strands are then twisted together in the opposite direction to form the rope. The fact that the twist directions alternate at different stages of rope assembly assures that the rope will be twist-stable and will not kink during use. Also called cord. **2.** Fabric in process without weft tension, thus having the appearance of a thick rope.

**ROPE MARK-** A fabric defect consisting of long, irregular, longitudinal markings on dyed or finished goods. A principal cause is abrasion while wet processing the fabric in rope form. Rope marks are often related to overloading of the fabric during wet processing.

**ROTOFLEX-** A fatigue or endurance test developed by Goodyear for industrial yarns or cords.

**ROT RESISTANCE-** The ability of textile materials to resist physical deterioration resulting from the action of bacteria and other destructive agents such as sunlight or sea water.

**ROUGH-** A fabric condition in which the surface resembles sandpaper. Principal causes are the shuttle rebounding in the box, jerky or loose shuttle tension, an incorrectly timed harness, and wild twist in the filling.

**ROVING-** **1.** In spun yarn production, an intermediate state between sliver and yarn. Roving is a condensed sliver that has been drafted, twisted, doubled, and redoubled. The product of the first roving operation is sometimes called slubbing. **2.** The operation of producing roving (. 1). **3.** In the manufacture of composites, continuous strands of parallel filaments.

**ROVING FRAME-** A general name for all of the machines used to produce roving, different types of which are called slubber, intermediate, fine, and jack. Roving frames draft the stock by means of drafting rolls, twist it by means of a flyer, and wind it onto a bobbin.

**ROWS-** In pile floor covering, the average number of tufts or loops per inch in the warpwise direction.

**RUBBER FILAMENT-** A filament extruded from natural or synthetic rubber and used as the core of some elastic threads.

**RUNNER-** A break in the yarn of a knit fabric that causes the stitch to "run" along the needle line (wale) in a vertical direction. (Also . END OUT.)

**RUNNER LENGTH-** In knitting, the number of inches of yarn from a warp to make one rack of fabric.

**RUN-PROOF-** A knitted construction in which the loops are locked to prevent runs.

**RUN-RESISTANT-** A type of knitting stitch that reduces runs.