

A

Abrasion Resistance - A measure of the ability of a wire, wire covering or material to resist surface wear or damage by mechanical means.

Accelerated Life Test - A test in which certain conditions such as voltage, temperature, etc., to which a cable or material is subjected are increased in magnitude above normal operating values to obtain observable deterioration in a reasonable period of time, and thereby provide a relative measure of the probable cable or material life under operating voltage, temperature, etc.

Accelerator - A chemical additive which hastens a chemical reaction under given conditions, known also as a Promotor or Sensitizer. It is commonly used in plastics and rubber compounding to reduce curing time.

Acceptance test - A test made to demonstrate the degree of compliance with specified requirements.

Adjacent Conductor - Any conductor next to another conductor in the same multi-conductor cable layer or in adjacent layers.

Admittance - The measure of ease with which an alternating current flows in a circuit. The reciprocal of impedance.

Aging - The change in properties of material with time under specific conditions.

Aircraft Ignition Cable - High tension cable for ignition systems of internal combustion aircraft engines.

Air Spaced Coaxial Cable - One in which air is essentially the dielectric material. Spirally wound synthetic filaments, beads, or braided filaments may be used to center the conductor.

Alloy - A metal formed by combining two or more other metals.

Alternating Current - Electric current that periodically and regularly reverses its direction. The frequency of the change in flow is expressed in cycles per second (Hertz or Hz).

Ambient Temperature - The temperature of a medium, such as gas or liquid, surrounding an object.

American Wire Gauge (AWG) - The standard system used for designating wire diameter. Also referred to as the Brown and Sharp (B & S) wire gauge.

Ampere - The unit expressing the rate of flow of an electrical current. One ampere is the current flowing through one ohm of resistance at one volt potential.

Ampere's Rule - Current in a certain direction is equivalent to the motion of positive charges in that direction. The magnetic flux generated by the current in a wire encircles the current in the counter-clockwise direction when it is approaching the observer.

Annealed Wire - Wire which has been softened by heating. Sometimes referred to as soft drawn wire.

Anti-Oxidant - Substance which prevents or slows down degradation due to oxidation.

Arc Resistance - Having resistive properties to an arc establishing a conductive path.

ASTM - Abbreviation for American Society for Testing and Materials.

Attenuation - Relative power loss in an electrical system. Applied to coaxial cables, the power drop or signal loss in a circuit, expressed in decibels, dB.

AWM - Designation for Appliance Wiring Material.

B

Backshell Mold - A mold used to mold a covering over the backshell of a connector or plug after it is connected to a cable.

Balanced Line - A cable having two conductors which carry voltages opposite in polarity but equal in magnitude with respect to ground.

Balun - A device for matching an unbalanced coaxial transmission line to a balanced two line system. A balun can also provide impedance transformation.

Band Width - The frequency of electrical signals transmitted within a +/-3 dB attenuation range.

Beryllium - A metal lighter than aluminum, non-magnetic, and characterized by good electrical conductivity and high thermal conductivity. It is available in sheet, foil, and wire forms. Strong conductor wire can be made from beryllium for use in applications where light weight is critical. The most important use for beryllium is in alloys, especially beryllium-copper alloys. Beryllium may be hazardous to one's health.

Binder - Spirally served tape or thread used for holding assembled cable components in place until additional manufacturing operations are performed.

Bond Strength - Amount of adhesion between bonded surfaces.

Bondable Wire - An insulated wire whose surface has been treated to facilitate adherence to other materials such as potting compounds.

Braid - Woven bare metallic or tinned copper wire used as shielding for wires and cables and as ground wire equipment. Also, a woven fibrous protective outer covering over a conductor or cable.

Braid Angle - The angle between the axis of the cable and axis of any one member or strand of the braid (also known as angle of advance). It is further the smaller of the two angles formed by the carrier and the longitudinal axis of the braid.

Braid Carrier - The spool or bobbin on a braiding machine which holds one group of strands or filaments consisting of a specific number of ends. The carrier revolves during the braiding operation.

Braid Ends - The strands used to make up one carrier. The strands are wound side by side on the carrier bobbin and lay parallel in the finished braid.

Breakdown Voltage - The voltage at which the insulation between two conductors will break down.

Breakout - The point at which a conductor or conductors break out from a multi-conductor cable to complete circuits at various points along the main cable. The remainder of the conductor continue on within the jacket.

Bunched Stranding - Term applied to group of strands twisted together in a random manner in the same direction in one operation without regard to geometric arrangement of specific strands.

Bus - Wire used to connect two terminals inside an electrical unit. A common point for electrical circuits to return. Can be bare, tinned, or insulated.

Butt - Joining of two conductors end-to-end, with no overlap and with their axes in line.

C

Cable - Either a stranded conductor with or without insulation and other covering (single-conductor cable), or a combination of conductors insulated from one another (multiple-conductor cable).

Cable Core - The portion of an insulated cable lying under the protective covering or coverings.

Cable Filler - The material used in multiple-conductor cables to occupy the interstices formed by the assembly of the insulated conductors, thus forming a cable core of the desired shape (usually circular).

Cable Sheath - The protective covering applied to cables.

Cabling - Twisting together two or more insulated conductors by machine to form a cable. This also is a term loosely applied to bundling of wires together such as in the forming of wire harnesses.

Cabbling Factor - Used in formula for calculating the overall diameter of cable. $D=fd$ where D =cable diameter, f =factor, and d =diameter of one conductor.

Capacitance (Capacity) - That property of a system of conductors and dielectrics which permits the storage of electricity when potential difference exists between the conductors. Its value is expressed as the ratio of a quantity of electricity to a potential difference. A capacitance value is always positive.

Capacitive Coupling - Electrical interaction between two conductors caused by the mutual capacitance between them.

Cellular Insulation - Material in foamed form with the cells closed or interconnected.

Characteristic Impedance - Characteristic impedance of a uniform line is the ratio of an applied potential difference to the resultant current at the point where the potential difference is applied, when the line is of infinite length. Note that the term is applied only to a uniform line. A coaxial cable is such a uniform line. There are three main impedance groups in coaxial cable, namely, 50, 70, and 93 ohms.

Cigarette Wrap - Tape insulation wrapped longitudinally instead of spirally over a conductor.

Circuit - A complete path over which electrons can flow from the negative terminals of a voltage source through parts and wires to the positive terminals of the same voltage source.

Circular Mil - A unit of area equal to the area of a circle whose diameter is 1 mil (0.001 inch); equal to square mil x 0.78540. Used chiefly in specifying cross-sectional areas of round conductors.

Cladding - A method of applying a layer of metal over another metal whereby the junction of the two metals is continuously welded.

Coating - Plating surface of a conductor to prevent corrosion and facilitate soldering. One coating commonly used on copper wire is tin. Term can also apply to an insulating coating. junction of the two metals is continuously welded.

Coaxial Cable - A cable consisting of two cylindrical conductors with a common axis. The two conductors are separated by a dielectric. The outer conductor, normally at ground-potential, acts as a return path for current flowing through the center conductor and prevents energy radiation from the cable. The outer conductor, or shield, is also commonly used to prevent external radiation from affecting the current flowing in the inner conductor. The outer shield or conductor consists of woven strands of wire or is a metal sheath.

Coil Effect - The inductive effect caused by a spiral wrapped shield. This is more pronounced at higher frequencies.

Cold Bend - Test procedure whereby a sample of wire or cable is wound around a mandrel of a specified size within a cold chamber, at a specified temperature for a given number of turns at a given rate of speed. The sample is then removed and examined for defects or deterioration in the materials or construction.

Cold Flow - Permanent deformation of materials due to mechanical force or pressure (not due to heat softening).

Cold Joint - Soldered joint made with insufficient heat.

Cold Work - Hardening and embrittlement of metal due to repeated flexing action.

Concentric - A central core surrounded by one or more layers of helically wound strands in a fixed round geometric arrangement. It is optional for the direction of lay for successive layers to be alternately reversed or in the same direction. If the direction of lay for successive layers is the same, the lay length shall increase with each successive layer. The standard direction of the outer layer is left hand.

Concentric-Lay Cable - Either: (a) A concentric-lay conductor as defined above, or (b) A multiple-conductor cable composed of a central core surrounded by one or more layers of helically laid wires. (Note: In the most common type of Concentric-Lay Conductor, all wires are of the same size and the central core is a single wire.)

Concentric Strand - A strand that consists of a central wire or core surrounded by one or more layers of spirally laid wires. Each layer after the first has six more strands than the preceding layer and is applied in a direction opposite to that of the layer under it.

Concentricity - In a wire or cable, the measurement of the location of the center of the conductor with respect to the geometric center of the circular insulation.

Conductance - The reciprocal of resistance. It is the ratio of current passing through a material to the potential difference at its ends.

Conductivity - Reciprocal of volume resistivity. Conductance of a unit cube of any material.

Continuity Check - A test performed on a length of finished wire or cable to determine if the electrical current flows continuously throughout the length. Each conductor may also be checked against each other to ascertain that no short exists.

Contra-helical - The direction of a layer with respect to the previous layer meaning a layer spiraling in an opposite direction than the preceding layer within a wire or cable.

Controlled Impedance Cable - Package of two or more insulated conductors where impedance measurements between respective conductors are kept essentially constant throughout the entire length.

Copolymer - A compound resulting from the chemical reaction of two chemically different monomers with each other.

Copper - Available in rod, sheet, foil, tube, and wire forms. On a volume basis, copper has the conductivity of the common (non-precious) metals. Copper and copper alloys offer excellent corrosion resistance, high thermal conductivity, and ease of fabricating, joining and forming. The strength to weight ratio of copper is relatively low and it loses strength at elevated temperatures. Copper is the most widely used electrical conductor in wires and cables. Some of the common types of electrical coppers and copper alloys are: Electrolytic tough pitch copper (ETPC) has a minimum copper content of 99.9%. Annealed conductivity averages 101% with a 100% minimum. It is widely used for wire and bus bars. Silver bearing copper with a 99.9% copper content provides nearly the same electrical conductivity as the ETP copper but offers a higher softening point, greater resistance to creep, and higher strength at elevated temperatures. Oxygen-free high-conductivity copper (OFHC) has 99.95% minimum copper content with an average annealed conductivity of 101%. This copper has no residual deoxidant. Other coppers use phosphorus, boron, or lithium as deoxidizers to eliminate susceptibility to hydrogen embrittlement and improve weld ability.

Copper-Covered Steel Wire - A wire having a steel core to which is fused an outer shell of copper.

Cord - A small, very flexible insulated cable constructed to withstand mechanical abuse. (Note: There is no sharp dividing line in respect to size between a cord and a cable, but generally, a cord is considered to be size No. 10 and smaller.)

Corona - A luminous discharge due to ionization of the gas surrounding a conductor around which exists a voltage gradient exceeding a certain critical value.

Corona Extinction - The voltage where corona, once initiated, will extinguish, while applying a decreasing voltage to the cable.

Corona Ignition Point - The voltage where corona will start, while applying an increasing voltage signal to the cable.

Corona Resistance - The time that insulation will withstand a specified level field-intensified ionization that does not result in the immediate, complete breakdown of the insulation.

Coulomb - Unit quantity of electricity; i.e. the quantity transferred by one ampere in one second.

Crazing - Minute cracks on or near the surface of materials such as plastics.

Cross-Linking - The setting-up of chemical links between the molecular chains.

Cross-Sectional Area of a Conductor - The sum of the cross-sectional areas of its component wires, that of each wire being measured perpendicular to its individual axis.

Crosstalk - Signal interference between nearby conductors caused by the pickup of stray energy.

CSA - Canadian Standards Association.

Cure - To change the physical properties of a material by chemical reaction, by the action of heat and catalysts, alone or in combination, with or without pressure.

Current Carrying Capacity - The maximum current a conductor can carry without heating beyond a safe limit.

Cut-Through Resistance - Resistance of solid material to penetration by an object under conditions of pressure, temperature, etc.

D

dB Loss - The relative loss of a signal in a conductor expressed in decibels.

D.C. - Abbreviation for direct current.

Decibel (dB) - Unit to express ratio differences of power level. Used to express power gain in amplifiers or power loss in passive circuits or cables.

Delay Line - A cable or component made to provide an electrical delay for transmitted signals.

Denier - A term that describes the weight of a yarn (not cotton or spun rayon) which in turn determines its physical size.

Dielectric - 1) Any insulating medium which intervenes between two conductors and permits electrostatic attraction and repulsion to take place across it. 2) A material having property that energy required to establish an electric field is recoverable in whole or in part, as electric energy.

Dielectric Absorption - That property of an imperfect dielectric whereby there is an accumulation of electric charges within the body of the material when it is placed in an electric field.

Dielectric Constant (Permittivity or Specific Inductive Capacity) - That property of a dielectric which determines the electrostatic energy stored per unit volume for unit potential gradient. Relative dielectric constant is the ratio of resulting capacitance to the capacitance that would have been present with an air dielectric.

Dielectric Loss - Losses due to electric energy being transformed into heat in a dielectric when it is subjected to a changing electric field.

Dielectric Strength - The voltage which an insulating material can withstand before breakdown occurs, usually expressed as a voltage gradient (such as volts per mil).

Dissipation Factor (loss tangent, tan approx. power factor) - The tangent of the loss angle of the insulating material.

Duplex Cable - A cable composed of two insulated single conductor cables twisted together. (Note: The assembled conductors may or may not have a common covering of binding or protecting materials. See also Parallel Pair.)

Durometer - A measuring device used to denote the hardness of a substance.

E

Eccentricity - A measure of the center of a conductor's location with respect to the circular cross section of the insulation. Expressed as a percentage of center displacement of one circle within the other.

Elastomer - A material which at room temperature stretches under low stress to at least twice its length and snaps back to original length upon release of stress. (See Rubber.)

Electromotive Force (e.m.f.) - Pressure or voltage. The force which causes current to flow in a circuit.

Electro-Tinned - Electrolytic process of tinning wire using pure tin.

Elongation - The fractional increase in length of a material stressed in tension.

Embossing - A marker identification by means of thermal indentation leaving raised lettering on the sheath material of a cable.

ETP - Abbreviation for Electrolytic Tough Pitch copper. See Copper.

Extrusion - Method of forcing plastic, rubber, or elastomer material through an orifice in more or less continuous fashion to apply insulation or jacketing to conductor or cable.

F

Farad - Unit of Capacitance. The capacitance of a capacitor which, when charged with one coulomb, gives a difference of potential of one volt.

FEP - Abbreviation for Fluorinated Ethylene Propylene.

Filler - Materials used in multi-conductor cables to occupy the interstices formed by the assembled conductors. Also, a substance, often inert, added to a plastic to improve properties and/or decrease cost.

Flammability - Measure of the material's ability to support combustion.

Flat Braid - A woven braid, usually composed of tinned copper strands, which is rolled flat at time of manufacture to a specific width depending upon construction. It is generally used as a high current conductor at low voltages.

Flex Life - Ability of a conductor, wire, or cable to withstand repeated bending.

Frequency - The number of times an alternating current repeats its cycle in one second.

G

Gigahertz - A unit of frequency equal to one billion Hertz.

H

Hard Drawn Copper Wire - Copper wire that has not been annealed after drawing.

Heat Seal - In cabling, a method of sealing a tape wrap jacket by means of thermal fusion.

Heat Shock - Test to determine stability of a material by sudden exposure to a high temperature for a short period of time.

Henry - Unit of inductance when the induced electromotive force of one volt is produced by the inducing current changing at the rate of one ampere per second.

Hertz (Hz) - A term replacing cycles-per second as the unit of measure for frequency.

High Strength Alloy Conductor - a conductor which shows a maximum 20% increase in resistance and a minimum of a 70% increase in breaking strength over the equivalent construction in pure copper while exhibiting a minimum elongation of 5% in 10 inches.

High Voltage - Generally considered to be a wire or cable with an operating voltage of 600 volts.

Hi-Pot - A test designed to determine the highest potential that can be applied to a conductor without breaking through the insulation.

Hot Tin Dip - A process of passing bare wire through a bath of molten tin to provide a coating.

I

Impedance - The total opposition that a circuit offers to the flow of alternating current or any other varying current at a particular frequency. It is a combination of resistance R and reactance X, measured in ohms and designated by Z.

Impulse Strength - The voltage breakdown of insulation under voltage surges on the order of microseconds in duration.

Inductance - The property of a circuit or circuit element that opposes a change in current flow. Inductance thus causes current changes to lag behind voltage changes. Inductance is measured in henrys.

Inorganic - Designating-or composed of-matter other than animal or vegetable, such as earthy or mineral matter.

Insulation Resistance - The ratio of the applied voltage to the total current between two electrodes in contact with a specified insulator.

Interstice - A minute space between one thing and another, especially between things closely set or between the parts of a body.

Ionization Voltage (Corona Level) - The minimum value of falling r.m.s. voltage which sustains electrical discharge within the vacuous or gas-filled spaces in the cable construction or insulation.

J

Jute - A natural fiber of plant base formed into rope-like strands. Used in cables for filling the interstices to give a round cross-section.

K

KAPTON ® - DuPont Company registered trademark for polyimide film.

Kilovolt Ampere - 1000 volts X amperes.

Kilovolt - 1000 volts.

L

Lacquer Finish - A finish applied over braided wire or cable for appearance and protection against fraying, wicking, moisture absorption, abrasion, etc.

Laminates - Two or more layers, usually of different materials, bonded or laminated together.

Lay - The lay of any helical element of a cable is the axial length of a turn of the helix of that element. (Note: among the helical elements of a cable may be each strand in a concentric-lay cable, or each insulated conductor in a multiple-conductor cable.) Lay is often referred to as pitch.

Limpness - The ability of a cable to lay flat or conform to a bend.

Litz Wire - Wire made from a number of fine, separately-insulated strands specially braided or woven together for reduced skin effect and hence lower resistance to high frequency currents for lower RF losses. The full name is Litzendraht Wire.

Low Loss - Term applied to a dielectric material or cable that has a small amount of power loss over long lengths.

Low Noise Cable - Cable configuration specially constructed to eliminate spurious electrical disturbances caused by capacitance changes or self-generated noise.

M

Marker Tape - A tape laid parallel to the conductors under the jacket in a cable, imprinted with manufacturer's name and the specification to which the cable is made.

Marker Thread - A colored thread laid parallel and adjacent to the strands of an insulated conductor which identifies the wire manufacturer and sometimes the specification under which the wire is constructed.

Melt Index - Extrusion rate of a thermoplastic material through an orifice of specified diameter and length under specified conditions of time, temperature, and pressure.

Micro - Prefix denoting one-millionth.

Microfarad - One millionth of a farad.

MIL - Abbreviation for military specifications for wire.

Mil - 0.001"(1/1000 inch) one 1000th of an inch. A unit used in measuring diameter of wire or thickness of an insulation over a conductor.

Moisture Absorption - Generally, the amount of moisture in percentage that an insulation will absorb under specified conditions.

Molecular Weight - The weight of any molecule which is the sum of the weights of its constituent atoms.

N

NEC - Abbreviation for National Electrical Code, which covers the use of wire and cable in many applications.

NEMA - Abbreviation for National Electrical Manufacturers Association.

Nylon - The generic name for synthetic fiber-forming polyamides. Available in three forms for wires and cables: as a yarn for wire serving and braid; as an extrusion material (primarily for jackets); and a coating. For conductors of any but a small size, the electrical properties and hygroscopic properties of nylon limit its use to jacketing rather than primary insulation. Nylon extrusions are characterized by toughness and excellent oil resistance.

O

OD - Abbreviation for outside diameter.

Ohm - Unit of electrical resistance. Resistance of a circuit in which a potential difference of one volt produces a current of one ampere.

Ohm's Law - Current in terms of electromotive force E and resistance R: given by equation: $I=E/R$.

Open Cell - Foamed or cellular material with cells which are generally interconnected. Closed cells refers to cells which are not interconnected.

P

Percent Conductivity - Conductivity of material expressed as a percentage of that of copper. Copper being 100%.

Percent Plating - Quantity of plating on a conductor expressed as percentage by weight; thus, for the same percentage, as the conductor diameter increases, so does the thickness of the plating.

Permittivity - Preferred term for dielectric constant.

Phase Shift - Change in phase of a voltage or current after passing through a circuit or cable.

Picks Per Inch - The number of times the carriers in a braid cross over each other in the same direction along the longitudinal axis for each inch of length.

Pitch Diameter - Diameter of a circle passing through the center of the conductors in any layer of multi-conductor cable.

Planetary Twister - A twisting machine whose payoff spools are mounted in rotating cradles that hold the axis of the spool in a fixed direction as the spools are revolved about one another so the wire will not kink as it is twisted.

Plasticizer - Chemical agent added to plastics to make them softer and more flexible.

Polyamide - A compound characterized by more than amide group. See nylon.

Polyethylene - A thermoplastic material composed of polymers of ethylene. A variety of types of polyethylene are used in wires and cables.

Polyimide - Available for wire insulation in both film form and as a coating over an insulation or jacket.

Polymer - A compound formed by polymerization which results in the chemical union of monomers or the continued reaction between lower molecular weight polymers.

Polypropylene - A plastic made by the polymerization of high-purity propylene gas in the presence of an organo metallic catalyst at relatively low pressures and temperatures. It is similar to polyethylene but stiffer.

Polytetrafluoroethylene - This is the most thermally stable and chemically resistant of all carbonaceous insulating compounds. It is unaffected by sunlight, moisture, and practically all chemicals. Temperature range is -90°C to $+250^{\circ}\text{C}$ and electrical properties are very constant over the temperature range and a wide range of frequencies. Insulation may be applied by extrusion, taping, dip-coating, and in cases where another material is used, by dispersion coating.

Polyurethane - This material can be used as a jacketing material and offers good abrasion and is very flexible.

Polyvinyl Chloride (PVC) - A general thermoplastic material composed of polymers of vinyl chloride. PVC is widely used for primary wire insulation or jacketing.

Potting - Sealing of a cable termination or other part with a liquid composition which hardens into an elastomer or solid plastic material.

Power Factor - 1) In an alternating current circuit, it is the number of watts indicated by a watt meter, divided by the apparent watts, the latter being the watts as measured by a voltmeter and a meter. 2) It is the multiplier used with the apparent watts to determine how much of the supplied power is available for use. 3) That quantity by which the apparent watts must be multiplied in order to the true power. 4) Mathematically, the cosine of the angle of phase difference between current and voltage applied.

Propagation Delay - Time delay between input and output of signal usually measured in nanoseconds per foot of cable.

R

Reactance - Opposition offered to the flow of alternating current by inductance or capacitance of a component or circuit.

Red Plague - A powdery red cuprous oxide growth sometimes found on silver coated copper conductors and shield braids. It is fungus-like in appearance and will appear in random spots along the length of a conductor or shield. It most often occurs at the point of crossover in a shield or in the interstices of a standard conductor. Proper design, manufacture and installation has largely eliminated this problem. Small amounts of water are required to initiate this reaction.

Resin - An organic substance of natural or synthetic origin characterized by being polymeric in structure and predominantly amorphous. Most resins, though not all are of high molecular structure. Usually resins are more soluble in their lower molecular weight forms.

RG/U - RG is the military designation for coaxial cable. The "U" stands for universal.

RMS - Abbreviation for root-mean-square. When the term is applied to alternating voltage and current it means the effective value; that is, it produces the same heating effect as a direct current or voltage of the same magnitude. It is also a means of expressing a-c voltage in terms of d-c. Usually approximately 80% of the a-c peak voltage.

Rope Concentric - A group of stranded conductors assembled in a concentric manner. The direction of lay of the outer rope members is usually left hand.

Rope-Lay Conductor or Cable - A cable composed of a central core surrounded by one or more layers of helically laid groups of wires. (Note: This kind of cable differs from a concentric-lay conductor in that the main strands are themselves stranded. In the most common type of rope-lay conductor or cable, all wires are of the same size and the central core is a concentric-lay conductor.)

S

SAE - Abbreviation for Society of Automotive Engineers.

Serving - A wrapping applied over the core of a cable or over a wire. Servings may be in the form of filaments, fibers, yarn, tape, etc.

Shield - A metallic layer placed around an insulated conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields. This shield can be braided or served wires, oil wrap, foil backed tape, a metallic tube, or conductive vinyl or rubber.

Shield Coverage - When a metallic braid of tinned or bare copper is applied over the insulated conductors, the shielding effectiveness is in proportion to the amount of optical coverage, usually expressed in percentage.

Shield Effectiveness - The relative ability of a shield to screen out interference.

Skin Effect - The phenomenon wherein the depth of penetration of electric currents into a conductor decreases as the frequency of the current increases.

Spark Test - A test performed on wire and cable to determine the amount of detrimental porosity (pin holes) or defects in the insulation.

Specific Gravity - The density (mass per unit volume) of any material divided by that of water at a standard temperature.

Splice - A connection of two or more conductors or cables to provide good mechanical strength as well as good conductivity.

Standing Wave Ratio - Peak amplitude (See Voltage Standing Wave Ratio)

Surface Leakage - The passage of current over the boundary surfaces of an insulator as distinguished from passage through its volume.

Sweep Test - Pertaining to cable, checking the frequency response by generating an rf voltage, the frequency of which is varied back and forth through a given frequency range at a rapid constant rate while the results are shown on an oscilloscope.

T

Tank Test - A term used to describe a voltage dielectric test where the specimen to be tested is submerged in a liquid (usually water) and a voltage potential applied between the conductor and the liquid as ground.

Temperature Rating - The maximum temperature at which the insulating material may be used in continuous operation without loss of its basic properties.

Tensile Strength - The pulling stress required to break a given specimen.

Thermal Conductivity - Ability of a material to conduct heat.

Thermal Expansion (Coefficient of) - The fractional change in length (sometimes volume) of a material for a unit change in temperature.

Thermal Shock - The resulting characteristics when a material is subjected to rapid and wide range changes in temperature in an effort to discover its ability to withstand heat and cold. In connectors, the effect can cause inserts and other insulation materials to pull away from metal parts.

Thermocouple - A device for measuring temperature where two electrical conductors of dissimilar metals are joined at the point of heat application and a resulting voltage difference, directly proportional to the temperature, is developed across the free ends and is measured potentiometrically.

Thermoplastic - A classification of resin that can be readily softened and resoftened by repeated heating.

Thermosetting - A classification of resin which cures by chemical reaction when heated and, when cured, cannot be resoftened by heating.

Tinsel Wire - A low voltage, stranded wire where each strand is a very thin conductor ribbon spirally wrapped around a textile yarn. Insulation is generally a textile braid. Intended usage is for severe flexing.

Topcoat - Term used to describe an unplated stranded conductor fused together with an overall tin coating.

Transfer Impedance - For a fixed cable length, transfer impedance relates a current on one surface of a shield to the voltage drop generated by this current on the opposite surface of the shield. Transfer impedance is a measure of the shield effectiveness. Cables with low transfer impedance are more effective than cables with high value.

Transmission Line - One or more insulated conductors arranged to transmit electrical energy signals from one location to another, or to transmitting electrical energy over long distances for power purposes.

Transmission Loss - A term used to denote a decrease or loss in power during the transmission of energy from one point to another. Usually expressed in decibels.

Triaxial - refers to a three-conductor cable with one conductor in the center, a second circular conductor shield concentric with the first, and third circular conductor shield insulated from and concentric with the first and second, usually with insulation, and a braid or impervious sheath overall.

Triboelectric Noise - Noise generated in a shielded cable due to variations in capacitance between the shield and conductor as the cable is flexed.

U

UHF - Abbreviation for Ultra High Frequency.

UL - Abbreviation for Underwriters Laboratories, Inc.

Ultra Violet Degradation - Deterioration caused by long time exposure of a material to sunlight or other ultraviolet rays containing radiation.

Unbalanced Line - A transmission line in which voltages on the two conductors are unequal with respect to ground. A coaxial cable is an example.

Unidirectional Concentric Stranding - A stranding where each successive layer has a different lay length, thereby retaining a circular form without migration of strands from one layer to another.

Unilay Strand - A conductor constructed with a central core surrounded by more than one layer of helically-laid wires, with all layers having a common length and direction of lay.

V

Velocity of Propagation Percent - The velocity of propagation is the ratio of the transmission speed of an electrical signal down a length of cable compared to the speed in free space. It is approximately equal to 100 divided by the square root of the relative dielectric constant.

Viscosity - A measure of the resistance of a fluid to flow (usually through a specific orifice).

Voltage Drop - The amount of voltage loss from original input in a conductor of given size and length.

Voltage Standing Wave Ratio - The ratio of the maximum effective voltage to the minimum effective voltage measured along the length of a mismatched radio frequency transmission line.

Volume Resistivity (Specific Insulation Resistance) - The electrical resistance between opposite faces of 1-cm cube of insulating material, commonly expressed in ohm-centimeters.

W

Water Absorption - Ratio of the weight of water absorbed by a material to the weight of the dry material.

Waterblocked Cable - A cable constructed with no internal voids in order to allow no longitudinal water passage under a given pressure.

Watt - Unit of power or work done at a rate of one joule per second or rate of work represented by current of one ampere under a pressure of one volt (volt-ampere).

Wave Length - The distance, measured in the direction of propagation, of a repetitive electrical pulse or wave form between two successive points that are characterized by the same phase of vibration.

Wicking - The longitudinal flow of a liquid in a wire or cable construction due to capillary action.