

AC - Alternating Current

AL - Aluminum

alloy - A substance having metallic properties and being composed of an elemental metal and one or more chemical elements.

ambient - Conditions existing at a test operation location prior to energizing of equipment (example: ambient temperature).

ampacity - The rms current which a device can carry within specified temperature limitations in a specified environment: dependent upon a) temperature rating, b) power loss or c) heat dissipation.

ampere - A standard unit of current.

anneal - To soften and relieve strains in any solid material, such as metal or glass, by heating to just below its melting point and then slowly cooling it. This also generally lowers the tensile strength of the material while improving its flex life.

antioxidant - Retards or prevents degradation of materials exposed to oxygen (air) or peroxides.

AWG - American Wire Gauge. A wire diameter specification. The lower the AWG number, the larger the wire diameter.

AWM - Appliance Wiring Material.

bare conductor - A conductor having on insulation or jacket.

binder - A tape or thread used for holding assembled cable components in place.

braid - Textile or metallic filaments interwoven to form a tubular structure which may be applied over one of more wires or flattened to form a strap.

bunch strand - Conductors twisted together with the same lay and direction without regard to geometric pattern.

Butyl Rubber - A synthetic rubber used for electrical insulating purposes.

C - Symbol designation for capacitance and centigrade.

cabbling - The method by which a group of insulated conductors is mechanically assembled (or twisted together).

capacitance - The ability of a dielectric material between conductors to store electricity when a difference of potential exists between the conductors. The unit of measurement is the farad, which is the capacitance value which will store a charge of one coulomb when a one-volt potential difference exists between the conductors. In as, one farad is the capacitance value which will permit one ampere of current, when the voltage across the capacitor changes at the rate of one volt per second.

cathodic protection - Reduction or prevention of corrosion by making the metal to be protected the cathode in a direct current circuit.

cellular polyethylene - Expanded or "foam" polyethylene, consisting of individual closed cells of inert gas suspended in a polyethylene medium, resulting in a desirable reduction of dielectric constant.

circuit - A system of conducting mediums designed to pass an electric current.

concentric stranding - A group of uninsulated wires twisted together and containing a center core with subsequent layers spirally wrapped around the core to form a single conductor.

conductance - The real part of admittances. It is the reciprocal of resistance and is measured in ohms.

conductivity - The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied. Also, it is the reciprocal of resistivity. It has units of mhos/meter.

conductor - A material suitable for carrying an electric current.

cord - A very flexible insulated cable.

CPE - Dow chemical trademark for chlorinated polyethylene. A jacketing compound.

crosstalk - A type of interferences caused by audio frequencies from one line being coupled into adjacent lines. The term is loosely used also to include coupling at higher frequencies.

CSA (Canadian Standards Association) - Similar to UL in the United States.

CSPE - A Dupont jacketing compound based on chlorosulfonated polyethylene (Hypalon). Sometimes abbreviated CSP.

Current - The rate of transfer of electricity. The unit of current is the ampere, a rate of one coulomb/second

DC (Direct current) - Electrical current whose electrons flow in one direction only. It may be constant or pulsating as long as their movement is in the same direction.

dielectric - An insulating (non-conducting) medium
dielectric strength - The maximum voltage which an insulation can withstand without breaking down; usually expressed as a gradient in vpm (volts per mil.) Polyethylene for example has a dielectric strength of about 800vpm.

drain wire - An uninsulated wire in contact with a shield throughout its length, used for terminating the shield.

EP, EPR, EPM, EPDM - Designation for synthetic rubber based upon ethylene-propylene hydrocarbon.

EPDM - Ethylene Propylene Diene Monomer.

EPR - Ethylene propylene rubber.

FEF - (Teflon) Dupont trademark for fluorinated ethylene propylene.

G - A UL cable type. Rubber insulated, neoprene, Hypalon or CPE jacketed, portable power cable with two to five #8 AWG or larger conductors with ground wires.

G - GC - A UL cable type. A portable power cable similar to Type G, but a ground check conductor to monitor the continuity of the Grounding Circuit.

GND - Ground.

Ground - A voltage reference point that is the same as earth or chassis ground.

Halar - (ECTFE) Ausimont Co. trademark for ethylene chlorotrifluoroethylene.

hard-drawn wire - as applied to aluminum and copper wire that has been cold drawn to final size so as to approach the maximum strength attainable.

hazardous location - Ignitable vapors, dust or fibers that may cause fire or explosion as defined by the NEC.

HPN - A UL cable type. Two conductor, thermosetting-insulated heater cord. Parallel construction. For use in damp locations.

HS - A heater cord with two to four conductors insulated with rubber and asbestos, conductor cabled, outer covering is a rubber jacket - sizes 14 and 12 AWG.

HIS - Same as type HS but made in sizes 18 and 16 AWG

HSJO - A heater cord with two to four conductors insulated with rubber and asbestos, conductors cabled, outer covering neoprene jacket - sizes 18 and 16 AWG.

H50 - A UL cable type. Thermoset jacketed heater cord.

HV - High Voltage

Hypalon - (CSP) Dupont trademark for chlorosulfonated polyethylene.

ICEA - Insulated Cable Engineers Association. The association of cable manufacturing engineers who make nationally recognized specifications and test for cables. Formerly IPCEA.

IF - Intermediate-frequency.

impedance - The total opposition a circuit, cable, or component offers to alternating current. It includes both resistance and reactance and is generally expressed in ohms.

inductance - A property of a conductor or circuit which resists a change in current. It causes current changes to lag behind voltage changes and is measured in henrys.

insulation, rating - A maximum temperature assigned to insulation based on laboratory tests.

ISO - International Standards Organization (reference model for open systems interconnection). A standard approach to network design that introduces modularity by dividing the complex set of communications protocols into more manageable, functional slices.

Kapton - Dupont trademark for polyimide.

kV - Kilovolt (1000 volts)

kW - Kilowatt. 1000 watts power.

L - Symbol for inductance.

lay - Pertaining to wire and cable, the axial distance required for one cabled conductor or conductor strand to complete one revolution about the axis around which it is cabled.

LF - Low Frequency. A band of frequencies extending from 30 to 300 KHz in the radio spectrum, designated by the Federal Communications Commission.

LV - Low Voltage.

MCM - Thousand circular mils; e.g. 500MCM is 500,000 circular mils. Preferred notation is kcmil.

MHz - Megahertz (one million cycles per second).

mil - A unit of length equal to one thousandth of an inch.

MIL - Military specification.

MM - Mining machine cable.

MSHA - (Mine Safety and Health Administration). The federal enforcement agency for employee safety in mines and mills. Formerly known as - MESA, Bureau of mines. MSHA regulations appear in CFR Title 30, Chapter 1.

Mylar - DuPont trademark for polyethylene terephthalate (polyester) film.

NBR - Butadiene-acrylonitrile copolymer rubber, a material with good oil and chemical resistance.

NBR/PVC - A blend of acrylonitrile-butadiene rubber and polyvinyl chloride (PVC). Used for jacketing.

NEC - National Electric Code.

NEMA - National Electrical Manufacturers Associations.

neoprene - A synthetic rubber with good resistance to oil, chemical, and flame. Also called polychloroprene.

nylon - An abrasion-resistant thermoplastic with good chemical resistance. Polyamide.

OD - Outside diameter.

OEM - Original equipment manufacturer.

OFHC - Oxygen-free high conductivity copper.

ohm - The electrical unit of resistance. The value of resistance through which a potential difference of one volt will maintain a current of one ampere. Ohm's law - Stated $E=IR$, $I=E/R$ where E is voltage, I is current and R is resistance.

Open circuit - A break in an electrical circuit so that there can be no current flow.

OSHA - (United States Occupational Safety and Health Act), Federal Law #91-596 of 1970 charging all employers engaged in business affecting interstate commerce to be responsible for providing a safe working place. It is administered by the Department of Labour. OSHA regulations are published in Title 29, Chapter XV111, Part 1910 of the CFR and the Federal Register.

ozone - Extremely reactive form of oxygen, normally occurring around electrical discharges and present in the atmosphere in small but active quantities. In sufficient concentrations it can break down certain insulations.

PCP - (Neoprene) Polychloroprene.

plastic - High polymeric substances, including both natural and synthetic products, but excluding the rubbers that are capable of flowing under heat and pressure.

plasticizer - A chemical added to plastics to make them softer and more flexible.

polybutadiene - A type of synthetic rubber often blended with other synthetic rubbers to improve their properties.

polyethylene - A thermoplastic material having excellent electrical properties.

polymer - A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber, or elastomer.

polypropylene - A thermoplastic similar to polyethylene but stiffer and having higher softening point (temperature).

polyurethane - Broad class of polymers noted for good abrasion and solvent resistance. Can be in solid or cellular form.

polyvinylchloride (PVC) - A general purpose thermoplastic used for wire and cable insulations and jackets.

PPE - Polypropylene ethylene.

PTFE - (TFE Teflon) Polytetrafluorethylene.

PVC - Polyvinylchloride. A common insulating and jacketing material used on cables.

PVDF - (Kynar) Atochem trademark for polyvinylidene fluoride.

resistance - In dc circuits, the opposition a material offers to current, measured in ohms. In ac circuits, resistance is the real component of impedance, and may be higher than the value measured at dc.

retractile cord - A cord having specially treated insulation or jacket so that it will retract like a spring. Retractability may be added to all or part of a cord's length.

rope-lay conductor - see concentric stranding.

rubber, ethylene propylene (EPR) - A synthetic rubber insulation having excellent electrical properties.

rubber (wire insulation) - A general term used to describe wire insulations made of thermosetting elastomers such as natural or synthetic rubbers, neoprene, Hypalon, EPR and others.

S - Hard service flexible cord with thermoset insulation and jacket.

SAE - Society of Automotive Engineers.

SDN - Small diameter multi-conductor control cable with neoprene jacket and nylon sheath over polyethylene insulation.

separator - Pertaining to wire and cable, a layer of insulating material such as textile, paper, Mylar, etc, which is placed between a conductor and its dielectric, between a cable jacket and the components it covers, or between various components of a multiple-conductor cable. It can be utilized to improve stripping qualities and/or flexibility, or can offer additional mechanical or electrical protection to the components it separates.

SEW, SEWF - Silicone Rubber insulated equipment wire (C.S.A.)

SH-A - Portable mine power cable, three or four individually shielded conductors, 5kV.

SH-B - Same as SH-A, except shield is overall

SH-C - Same as SH-B, but with grounding conductors

SH-D - Same as SH-A, but with grounding conductors.

shield - A sheath, screen or braid of metal, usually copper, aluminum, or other conducting material placed around or between electric circuits or cables or their components, to contain any unwanted radiation, or to keep out any unwanted interference.

Short - A low resistance path that results in excessive current flow and often in damage.

Shovel Cable - Normally SHD-GDC type for high voltage (2 to 25kV) power supply to mobile equipment.

silicone - A material made from silicon and oxygen. Can be in thermosetting elastomer or liquid form. The thermosetting elastomer form is noted for high heat resistance.

SIS - Switchboard wiring made with cross linked polyethylene insulation.

SJ - Junior hard service, rubber-insulated pendant or portable cord. Same construction as type S, but 300V

SJO - Same as SJ, but oil-resistant outer jacket. 300V, 60C

SJOO - Same as SJO but with oil-resistant insulation as well as an oil-resistant jacket.

SJT - Junior hard service thermoplastic or rubber-insulated conductor with overall thermoplastic jacket 300V.

SJTO - Same as SJT but with oil-resistant thermoplastic outer jacket.

SJTOO - Same as SJTO but with oil-resistant insulation.

SO - Hard service cord, same construction as type S except oil-resistant thermoset jacket, 600V.

SOO - Same as SO but with oil-resistant insulation.

SOOW-A - A UL cable type. Portable cord and control cable. 600V. Same as SOO but UL Listed for outdoor use.

SOW - Water resistant thermoset jacketed portable cord. C.S.A. approved for outdoor use.

SP-1 - All thermoset, parallel-jacketed, two-conductor light duty cord for pendant or portable used in damp locations, 300V

SP-2 - Same as SP-1, but heavier construction, with or without third conductor for grounding purposes, 300V.

SP-3 - Same as SP-2, but heavier construction for refrigerators or room air conditioners, 300V.

ST - Hard service cord, jacketed, same as type S except thermoplastic construction, 600V, 60°C to 105°C.

STO - Same as ST but with oil-resistant thermoplastic outer jacket, 600V, 60°C.

STOO - Same as STO but with oil-resistant insulation.

strand - one of the wires of any stranded conductor.

surge - A temporary and relatively large increase in the voltage or current in an electric circuit or cable. Also called transient.

SV - A UL cable type. Vacuum cleaner cord, two or three conductor, rubber insulate. Overall rubber jacket. For light duty in damp locations, 300V 60°C.

SVO - A UL cable type. Same as SV except oil resistant thermoset jacket, 300V 60°C

SVT - A UL cable type. Same as SV except thermoplastic jacket. With or without third conductor for grounding purposes only. 300V 60°C or 90°C.

SVTO - A UL cable type. Same as SVT except with oil-resistant thermoplastic jacket, 60°C.

T - Thermoplastic vinyl, building wire, 60°C.

tensile strength - the maximum load per unit of original cross-sectional area that a conductor attains when tested in tension to rupture.

TPE - Thermoplastic Elastomer

TPO - same as TP, with extra flexible insul conductors, neoprene jacket.

UL - Underwriters' Laboratories, Inc.

V - Volts. The SI unit of electrical potential difference. It is the difference in potential between two points of a conducting wire carrying a constant current of one ampere when the power dissipated between these two points is equal to one watt.

volt - A unit of electrical "pressure." One volt is the amount of pressure that will cause one ampere of current in one ohm of resistance.

voltage drop - The voltage developed across a conductor by the current and the resistance or impedance of the conductor.

vulcanize - To cure by a chemical reaction that induces extensive changes in the physical properties of a rubber or plastic. It is brought about by reacting it with sulphur and/or other suitable agents. The changes in physical properties include decreased plastic flow, reduced surface tackiness, increased elasticity, much greater tensile strength, and considerably less solubility. The process is hastened by heat and pressure. The method of curing thermosetting materials - rubbers, XLP, etc.

W - Symbol for watt or wattage.

W - Heavy duty portable power cable, one to six conductors, 660V, without grounds.

watt - A unit of electrical power. One watt is equivalent to the power represented by one ampere of current under a pressure of one volt in a dc circuit.

welding - joining the ends of two wires, rods, or groups of wires 1) by fusing, using the application of heat or pressure or both, by means of a flame torch, electric arc, or electric current 2) by cold pressure.