

IRE Standards on Industrial Electronics: Definitions of Industrial Electronics Terms, 1955

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Applicator (Applicator Electrodes), (*Dielectric Heating* usage). Appropriately shaped conducting surfaces between which is established an alternating electric field for the purpose of producing *dielectric heating*.

Applicator Impedance, Loaded (*Dielectric Heating* usage). See *Loaded Applicator Impedance*.

Applicator Impedance, Unloaded (*Dielectric Heating* usage). See *Unloaded Applicator Impedance*.

Autoregulation Induction Heater. An induction heater in which a desired control is effected by the change in characteristics of a magnetic charge as it is heated at or near its *Curie point*.

Channel, Melting. See *Melting Channel*.

Charge. See *Load* (*Induction* and *Dielectric Heating* usage).

Contact, Load. See *Load Switch* (*Load Contactor*).

Converter, Mercury Arc, Pool Cathode. See *Pool Cathode Mercury Arc Converter*.

Converter, Quenched Spark Gap. See *Quenched Spark Gap Converter*.

Converter, Mercury Hydrogen Spark Gap. See *Mercury Hydrogen Spark Gap Converter*.

Core Type Induction Heater or Furnace. A device in which a *charge* is heated by induction and a magnetic core links the inducing winding with the charge.

Coreless Type Induction Heater or Furnace. A device in which a charge is heated by induction and no magnetic core material links the charge.

Note—Magnetic material may be used elsewhere in the assembly for *flux guiding* purposes.

Coupling (*Induction Heating* usage). The percentage of the total magnetic flux produced by an inductor which is effective in heating a *load* or *charge*.

Curie Point (*Induction Heating* usage). The temperature in a ferromagnetic material above which the material becomes substantially nonmagnetic.

Decalescent Point (of a metal). The temperature at which there is a sudden absorption of heat as the metal is raised in temperature.

Depth of Heating (*Dielectric Heating* usage). The depth below the surface of a material in which effective *dielectric heating* can be confined when the *applicator electrodes* are applied adjacent to one surface only.

Depth of Penetration (*Induction Heating* usage). The thickness of a layer extending inward from the surface of a conductor, which has the same resistance to direct current as the conductor as a whole has to alternating current of a given frequency.

Note—This term is useful only in cases where the surface is substantially flat.

Dielectric Dissipation Factor. The cotangent of the *dielectric phase angle* of a dielectric material.

Dielectric Heating. The heating of a nominally insulating material in an alternating electric field due to its internal losses.

Dielectric Phase Angle. The angular difference in phase between the sinusoidal alternating voltage applied to a dielectric and the component of the resulting alternating current having the same period as the voltage.

Dielectric Power Factor. The cosine of the *dielectric phase angle*.

Dielectric Strength. The maximum potential gradient that a material can withstand without rupture.

Domestic Induction Heater. A cooking device in which the utensil is heated by current, usually of commercial line frequency, induced in it by a primary inductor associated with it.

Dual Frequency Induction Heater or Furnace. A heater in which the *charge* receives energy by induction, simultaneously or successively, from a *work coil* or coils operating at two different frequencies.

Efficiency, Over-all Electrical. See *Over-all Electrical Efficiency* (*Induction* and *Dielectric Heating* usage).

Efficiency, Load Circuit. See *Load Circuit Efficiency* (*Induction* and *Dielectric Heating* usage).

Field Strength Meter. A calibrated radio receiver for measuring field strength.

Flux Guide (*Induction Heating* usage). Magnetic material to guide electromagnetic flux in desired paths.

Note—The guides may be used either to direct flux to preferred locations or to prevent the flux from spreading beyond definite regions.

Gaseous Tube Generator. A power source comprising a gas-filled electron tube oscillator, a power supply, and associated control equipment.

Glue Line Heating (*Dielectric Heating* usage). An arrangement of electrodes designed to give preferential heating to a thin film of material of relatively high loss factor between alternate layers of relatively low loss factor.

Heater Coil. See *Load Coil* (*Induction Heating* usage).

Heating Pattern. The distribution of temperature in a *load* or *charge*.

Heating Station. Location which includes *work coil* or *applicator* and its associated production equipment.

High-Frequency Induction Heater or Furnace. A device for causing electric current flow in a *charge* to be heated, the frequency of the current being higher than that customarily distributed over commercial networks.