Definition of Terms found at AlphaPiezo.com

Aging Rate
Aging rate expresses % change of a property per decade of time.

Coercive Field (E_c)
Electric field required to reduce net polarization to zero.

Curie Point (T_c)
Temperature of the ferroelectric to paraelectric phase transformation. Above this temperature polarization (and piezoelectric properties) are lost.

Dielectric Constant
$K = \varepsilon / \varepsilon_0$
where
ε = peremittivity of dielectric material
ε_0 = permittivity of free space
= 8.85×10^{-12} farad/inch

Capacitance (C) may be calculated from the dielectric constant:
$C = K\varepsilon_0 A / t$ Farads

where A = area of electrodes
t = thickness between electrodes

Dissipation Factor
tan δ: A measure of the dielectric losses in a material.

Electromechanical Coupling Factors
Electromechanical coupling factor (k) relates the amount of electrical energy that is transformed to mechanical energy or mechanical energy transformed to electrical energy

Direct piezoelectric effect:
$k = \text{electrical energy stored} / \text{mechanical energy applied}$

Converse piezoelectric effect:
$k = \text{mechanical energy stored} / \text{electrical energy applied}$

Frequency Constants
$N = f_r \times L$ (Hz-m)
where N = frequency constant
f_r = resonant frequency
L = controlling dimension

Mechanical Quality Factor (Q_M)
A measure of the mechanical losses in the material. It is 2π times the energy stored divided by energy dissipated per cycle at the mechanical resonant frequency.

Piezoelectric Constants (d_{ij} & g_{ij})
Piezoelectric constants are defined with a double subscript where i defines the direction of the electrical field (dielectric displacement) and j defines the direction of the applied stress (induced strain). The poling axis of a piezoelectric material is defined as the 3 direction.

d_{ij} – charge or strain coefficients

$\frac{\text{charge density}}{\text{applied stress}}$ in $\frac{\text{coulombs}}{\text{newton}}$

or

$\frac{\text{strain}}{\text{applied field}}$ in $\frac{\text{meters}}{\text{volt}}$

g_{ij} – voltage coefficients

$\frac{\text{open circuit field}}{\text{applied stress}}$ in $\frac{\text{volt-meter}}{\text{Newton}}$

or

$\frac{\text{strain}}{\text{applied charge density}}$ in $\frac{\text{meter2}}{\text{coulomb}}$

$d_{ij} = g_{ij}\varepsilon$
where ε is material permittivity.

Remanent Polarization (P_r)
Net polarization remaining in a polycrystalline dielectric material after removal of an electric field.

Young's Modulus (Y)
Modulus of elasticity (mechanical stiffness) expressed as a ratio of stress to strain (newton/m^2)