



ピエゾフィルム用 d31 測定システム

Piezoelectric Coefficient Test System



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※インストラクションマニュアルより抜粋

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- Working with DMA (provided by the customer), this test system can measure the dielectric and piezoelectric properties of materials.
 - The dielectric constant of materials is measured based on the surface charges induced with the voltage applications.
 - The piezoelectric force coefficient d_{31} and strain coefficient e_{31} are measured based on the surface charges induced by stretching piezo films along machine direction.
 - The mechanical modulus E is measured by DMA instrument (refer to the DMA manual for details)
 - The piezoelectric coupling factor k_{31} is measured based on the piezoelectric coefficients (d_{31}/e_{31}) and mechanical properties (E) of piezo films, evaluating the conversion efficiency between mechanical energy and electrical energy.

Frequency (Hz): 4 thickness (um): 40 area (cm²): 0.5
 Dielectric constant Charge generation Calculation

stress (MPa): 12.01 dielectric k: 14.414E
 strain (%): 0.5 charge Q (C): 1.4347E
 k31: 0.1036E
 d31 (pC/N): 23.89
 e31 (C/m²): 0.0573E

n	f (Hz)	strain (%)	E (MPa)	k	Q (C)	d31 (pC/N)	e31 (c/m ²)	k31
1	4.00	0.50	2414.00	14.07	1.43E-8	23.7	0.057	0.104
2	4.00	0.50	2418.00	14.41	1.44E-8	23.8	0.058	0.104
3	4.00	0.60	2376.67	14.41	1.72E-8	24.1	0.057	0.104
4	4.00	0.70	2332.86	14.41	1.99E-8	24.4	0.057	0.104
5	4.00	0.20	2442.50	14.41	5.88E-9	24.1	0.059	0.105
6	4.00	0.30	2448.67	14.41	8.72E-9	23.7	0.058	0.104
7	4.00	0.40	2433.00	14.41	1.15E-8	23.7	0.058	0.104
8	4.00	0.50	2402.00	14.41	1.43E-8	23.9	0.057	0.104

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