DIELECTRIC MATERIALS CHART — ECCOSTOCK® Low Loss Dielectrics & Other Common Materials

	.00	01 .00	02 .00	03 .00	04 .00	005 .00	006 .00	07 .00	00. 800)09 .(.00)2 .0()5 .	01 .0	5.	1 1	.0
	1.00	PP										<u> </u>					1.00
	1.05				Dielectric	s a medium havir			-k" is the relative it is usually giver								1.05
	1.1				that the energy tric field with in part, as ele	gy required to esi in it is recoverable actric energy. Dur nd from the medi	tablish an elec- le, in whole or ing energy	Factor. It sho Dissipation Fa that the Loss	build not be confus actor or Loss Tan Factor is the prod Istant and Dissipa	ed with gent. Note luct of the		SH FPH					1.1
	1.2				some dissipa heat. A non-m	tion of energy in nagnetic dielectric by real and imagi	the form of material is	Lossy Dielect Lossy dielectr above 0.1 (ap		ed by tan δ / may or may		FFP		Magnesium Carbonate			1.2
	1.3				nents of Comple :			properties usu eral, the lower greater the fre	ually vary with free r the specific DC re equency sensitivity antageous in man	uency; in gen- esistivity, the A frequency							1.3
	1.4				Normali: Dielectri	zation of ε* with c Permittivity of F 10-%/36π [farad	respect to the Free Space	of lossy dieled decreasing fre Low-Loss Die	ctrics is increasing equency.	k' and k" with							1.4
	1.5					_ gives tł k Relative Permitt ε*/ ^ε ο = k* = k' −	ivity	mately) are co They are elect erties show re	onsidered low-los trical insulators. E elatively little varia microwave range.	s materials. Dielectric prop- ition with fre-				Fir Plywood			1.5
	1.6				cate cap field ene		tan δ indi- of electric- ve charac-	material. Soli plastics, meta	ent homogeneous d natural dielectric al oxides, glasses,	types include semiconduc-	L						1.6
	1.7				dielectric addition of µ' and capabilit	cs. Magnetic diele ally characterized I tan _m which ir y of storage of m	ectrics are by means ndicate nagnetic-	(diamond, sa Adjusted Pro Composite or	etc.) and pure sin pphire, quartz). perty Dielectrics r mixture material:	s formulated		LOK					1.7
	1.8				energy v Dielectric Co	rgy and of dissip ria magnetic pher Instant - k' is the ctric constant. It	nomena. relative permit-	loss tangent. properties is requirements	lues of dielectric of A wide variety of available to meet covering a k' ran s and lossy dielec	dielectric design ge of 1.02 to							1.8
	1.9				the literature.	erred to as Dielec It is plotted verti a dimensionless of free space.	cally on this	Artificial Diel Adjusted prop tively conduc		ontaining rela- ficial							1.9
	2.0				tan δ are ider ly reported to acteristic of a	Factor (D), Loss ntical. This is the indicate the ene material. Plottec	quantity usual- rgy loss char- I horizontally	natural or oth at the same d Fillers	e light in weight of her adjusted prope lielectric constant size powdered ma	rty dielectrics		Jet Fuel JP-4					2.0
	2.1	Teflon™			on this chart, as follows:	, it is dimensionle D = tan δ = k"/k		rated in a plas	stic dielectric to in Mica silica glas	prove physi-		Natural Rubber (uncured)					2.1
INT	2.2		HT0003	Polypropylene							СК						2.2
JTSNO	2.3	Polyethlylene								Butyl Rubber (uncured)		CTFE Flouro- Polymer					2.3
RIC C	2.4	CPE										Styrene- Butadiene Rubber (25/75)					2.4
ELECT	2.5		Polystyrene			0005							Lexan™	Nitrile Rubber Neoprene™GN Rubber		Particle Board	2.5
	3	Fused Quartz	Fused Silica			cross-linked polystyrene						Mylar™		Nylon™ Epoxy Silicone Rubber		Zinc Oxide	3
	4			Boron Nitride							Borosilicate Glass		Pyrex™ Glass	HiK			4
	5			Mica			HiK							Cement			5
	6				Beryllium Oxide		Powder				Steatite	Wollastonite		Soda-lime Glass		Molybdenum Sulfide	6
	7																7
	8																8
	9			Sapphire	Magnesium Oxide		Aluminum Oxide										9
	10											Magnesium Titanate					10
	15										HiK ³⁻¹⁵ HiK500						15
	20		Vols. IV, V, ar	common mater nd VI and Techni or Insulation Res	ical Reports AF	ML-TR-72-39 a	nd 74-250				3-30				Zirconia		20
50			Technology N	Aeasurements a cy and temperation	re 25°C and 1- $^{-1}$	10 GHz. Proper	ties vary					Titanium Dioxide (rutile)				Pure Water Steak	50
	100																100
>	·100											Strntium Titanate				Barium Titanate	>100
	.00	01 .00	02 .00	03 .00	04 .00	.00	006 .00	07 .00	.00 000 208 700)09 .(ENT	.00	.00)5 .	01 .0	5.	1 1	.0
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		enue, Rand								the	e recogniz	ed globa	l leader	in micro			