C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC/ABS Stainless Steel Fiber (12%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (12%)
COLOR				Natural (Gray)
SUBSTRATE				PC/ABS (88%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤100
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		90.6 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		56.75
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		93.40
Flexural Modulus	GB/T 9341-2008	Mpa		3510
Tensile Elongation	GB/T 1040.2006	%		4.18
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		39.5
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	61.29	62.84	64.16	64.19	66.55	74.64
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	77.44	86.8	83.50	93.65	87.08	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC/ABS Stainless Steel Fiber (15%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (15%)
COLOR				Natural (Gray)
SUBSTRATE				PC/ABS (85%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤50
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		93.0 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		58.20
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		94.44
Flexural Modulus	GB/T 9341-2008	Mpa		3578
Tensile Elongation	GB/T 1040.2006	%		4.3
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		33.2
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	62.92	61.71	65.95	67.88	70.75	77.75
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	79.99	91.76	88.12	95.26	89.5	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC/ABS Stainless Steel Fiber (18%)

PROPERTIES	TEST METHOD	UNIT	DATA
CONDUCTIVE FILLER			Stainless Steel Fiber (18%)
COLOR			Natural (Gray)
SUBSTRATE			PC/ABS (82%)
ELECTROMAGNETIC SHIELDING PERFORMANCE			
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB	See Attachment 1
ELECTRICAL			
Surface Resistivity	IEC 167	Ω/sq	≤10
Volume Resistivity	ASTM D 4496-2004	Ω.cm	/
THERMAL			
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6	/
Thermal distortion temperature	GB/T 1634.1-2004	ºC	94.5 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC	/
PHYSICAL			
Density	GB/T 1033.1-2008	g/ cm3	/
Tensile Strength	GB/T 1040.1-2006	Mpa	59.35
Tensile Modulus	GB/T 1040-2006	Mpa	/
Flexural Strength	GB/T 9341-2008	Mpa	98.73
Flexural Modulus	GB/T 9341-2008	Mpa	3649
Tensile Elongation	GB/T 1040.2006	%	4.66
Mould Shrinkage Rate	ASTM D256-10	% Horizontal	/
		% Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m	22.6
Impact Strength (no gaps)	ASTM D256-10	J/m	N/A
FLAME RETARDANT			
Flame-retardant grades	GB/T 2408-2008	2mm	V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	61.85	64.71	70.63	72.92	74.70	84.43
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	86.62	93.11	92.34	96.26	91.2	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC Stainless Steel Fiber (12%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (12%)
COLOR				Natural (Gray)
SUBSTRATE				PC (88%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤100
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		127.6 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		65.4
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		105.96
Flexural Modulus	GB/T 9341-2008	Mpa		3013
Tensile Elongation	GB/T 1040.2006	%		6.49
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		32.6
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	56.37	65.25	69.33	69.67	75.18	80.44
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	84.43	85.76	79.34	92.40	88.08	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC Stainless Steel Fiber (15%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (15%)
COLOR				Natural (Gray)
SUBSTRATE				PC (85%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤50
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		128.8 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		67.24
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		115.43
Flexural Modulus	GB/T 9341-2008	Mpa		3262
Tensile Elongation	GB/T 1040.2006	%		6.33
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		26.5
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	60.26	66.17	70.02	72.58	75.42	79.87
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	83.12	89.16	86.81	93.9	89.29	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

PC Stainless Steel Fiber (18%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (18%)
COLOR				Natural (Gray)
SUBSTRATE				PC (82%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤10
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		131.7 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		68.25
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		118.55
Flexural Modulus	GB/T 9341-2008	Mpa		3421
Tensile Elongation	GB/T 1040.2006	%		6.80
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		23.4
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	65.65	69.84	78.10	80.26	82.81	85.66
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	88.61	87.87	91.84	95.25	92.0	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

ABS Stainless Steel Fiber (12%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (12%)
COLOR				Natural (Gray)
SUBSTRATE				ABS (88%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤100
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		79.5 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		36.47
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		56.20
Flexural Modulus	GB/T 9341-2008	Mpa		2402
Tensile Elongation	GB/T 1040.2006	%		4.14
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		41.00
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	78.24	80.49	81.55	87.61	77.59	75.73
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	80.10	81.26	86.29	93.68	90.54	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

ABS Stainless Steel Fiber (15%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (15%)
COLOR				Natural (Gray)
SUBSTRATE				ABS (85%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤50
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		80.3 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		37.21
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		57.30
Flexural Modulus	GB/T 9341-2008	Mpa		2528
Tensile Elongation	GB/T 1040.2006	%		4.20
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		39.80
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	78.73	82.33	98.29	99.05	87.22	80.00
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	76.95	82.60	89.39	94.68	91.54	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930

C&L DEVELOPMENT

CONDUCTIVE PLASTICS SPECIFICATIONS

ABS Stainless Steel Fiber (18%)

PROPERTIES	TEST METHOD	UNIT		DATA
CONDUCTIVE FILLER				Stainless Steel Fiber (18%)
COLOR				Natural (Gray)
SUBSTRATE				ABS (82%)
ELECTROMAGNETIC SHIELDING PERFORMANCE				
Shielding Effectiveness 2mm Wall Thickness 30MHZ-3GHZ	SJ 20524-1995	dB		See Attachment 1
ELECTRICAL				
Surface Resistivity	IEC 167	Ω/sq		≤10
Volume Resistivity	ASTM D 4496-2004	Ω.cm		/
THERMAL				
Thermal expansion coefficient	ASTMD686	m/m ºC.10-6		/
Thermal distortion temperature	GB/T 1634.1-2004	ºC		81.9 (1.8Mpa, 4mm)
Thermal softening temperature	GB/T 1633--2000	ºC		/
PHYSICAL				
Density	GB/T 1033.1-2008	g/ cm3		/
Tensile Strength	GB/T 1040.1-2006	Mpa		38.46
Tensile Modulus	GB/T 1040-2006	Mpa		/
Flexural Strength	GB/T 9341-2008	Mpa		59.32
Flexural Modulus	GB/T 9341-2008	Mpa		2672
Tensile Elongation	GB/T 1040.2006	%		4.26
Mould Shrinkage Rate	ASTM D256-10	%	Horizontal	/
			Vertical	/
Impact Strength (notched)	ASTM D955-08	J/m		38.9
Impact Strength (no gaps)	ASTM D256-10	J/m		N/A
FLAME RETARDANT				
Flame-retardant grades	GB/T 2408-2008	2mm		V-0

Attachment 1 (Unit: dB)

Frequency	30MHZ	100MHZ	200MHZ	300MHZ	500MHZ	700MHZ
Data	74.54	82.35	93.11	94.75	96.07	90.47
Frequency	1000MHZ	1500MHZ	2000MHZ	2500MHZ	3000MHZ	
Data	89.09	93.71	94.84	95.68	91.87	

C&L DEVELOPMENT CORP.
12930 SARATOGA AVENUE, SUITE B-5, SARATOGA, CA 95070, USA
TEL: (408) 864-0680 FAX: (408) 864-0930