

# Kleerdex Elson® 407AS DC Plate, Polycarbonate, Clear

**Subcategory:** Polycarbonate; Polymer; Thermoplastic

## Material Notes:

Information provided by Kleerdex Company

<b>Physical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Specific Gravity	1.2 g/cc	0.0434 lb/in <sup>3</sup>	ASTM D792; DIN 53479
Water Absorption	0.3 %	0.3 %	ASTM D570; DIN 53495
<b>Mechanical Properties</b>			
Tensile Strength, Yield	64.7 MPa	9380 psi	ASTM D638
Elongation at Break	100 %	100 %	ASTM D638; DIN 53455
Modulus of Elasticity	2.2 GPa	319 ksi	ASTM D638; DIN 53452
Flexural Modulus	2.6 GPa	377 ksi	ASTM D790; DIN 53457
Flexural Yield Strength	93.2 MPa	13500 psi	ASTM D790; DIN 53455
Compressive Strength	85.3 MPa	12400 psi	ASTM D695
Izod Impact, Unnotched (ISO)	83.4 kJ/m <sup>2</sup>	39.7 ft-lb/in <sup>2</sup>	JIS K7110
Izod Impact, Notched	8.47 J/cm	15.9 ft-lb/in	ASTM D256
<b>Electrical Properties</b>			
Surface Resistivity per Square	1e+006 - 1e+008 ohm	1e+006 - 1e+008 ohm	ASTM D257; DIN 53482
Static Decay	0.001 sec	0.001 sec	Electrostatic Discharge; MIL D-81715B
Dielectric Constant	4	4	ASTM D150; DIN 53483
<b>Thermal Properties</b>			
CTE, linear 20°C	70 µm/m-°C	38.9 µin/in-°F	ASTM D696
Specific Heat Capacity	1.26 J/g-°C	0.301 BTU/lb-°F	ASTM C177
Thermal Conductivity	0.2 W/m-K	1.39 BTU-in/hr-ft <sup>2</sup> -°F	ASTM C177
Deflection Temperature at 1.8 MPa (264 psi)	135 °C	275 °F	ASTM D648
Flammability, UL94	HB	HB	3-4.8 mm
Flammability, UL94	V-0	V-0	6 mm

# Polycarbonate Sheet Properties

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	Material Type			Polycarbonate				
	Test Method		Unit	PC 407 AS	PH 407 AS Hard Coat	DP 407 AS	DP 5109 A	DP 713 AS
<b>Electrical</b>								
Surface Resistivity	ASTM D-257	DIN 53482	Ω/L	10 <sup>6</sup> - 10 <sup>8</sup>	10 <sup>6</sup> - 10 <sup>8</sup>	10 <sup>6</sup> - 10 <sup>8</sup>	10 <sup>6</sup> - 10 <sup>8</sup>	10 <sup>6</sup> - 10 <sup>8</sup>
Electrostatic Discharge	MIL B-81705B	-	sec.	less than 0.1	less than 0.1	less than 0.1	less than 0.1	less than 0.1
Dielectric constant	ASTM D-150	DIN 53483	-	3	3	4	4	4
<b>Physical</b>								
Specific Gravity	ASTM D-792	DIN 53479	-	1.20	1.20	1.20	1.20	1.20
Water absorption	ASTM D-570	DIN 53485	%	0.3	0.3	0.3	0.3	0.3
Pencil hardness	JIS K 5400	-	-	HB	H	B	B	B
Coating Layer Bond Strength	JIS D 0202	-	-	100/100	100/100	100/100	100/100	100/100
<b>Optical</b>								
Transmittance	ASTM D-1003	-	%	80	78	84	48.1	48.2
Haze	ASTM D-1003	-	%	4	2-4	1.27	2	2.13
Refractive	ASTM D-542	-	-	1.58	1.58	1.58	1.58	1.58
Distinctness of Image	JIS K 7105	-	%	60	87	97.6	98.2	98.2
<b>Mechanical</b>								
Tensile strength	ASTM D-638	-	N/mm <sup>2</sup>	64.7	64.7	64.7	64.7	64.7
Tensile elongation, break	ASTM D-638	DIN 53455	%	100	100	100	100	100
Flexural strength, yield	ASTM D-790	DIN 53455	N/mm <sup>2</sup>	93.2	93.2	93.2	93.2	93.2
Modulus of elasticity	ASTM D-638	DIN 53452	N/mm <sup>2</sup>	2200	2200	2200	2200	2200
Flexural modulus	ASTM D-790	DIN 53457	N/mm <sup>2</sup>	2600	2600	2600	2600	2600
Compressive strength	ASTM D-695	-	N/mm <sup>2</sup>	85.3	85.3	85.3	85.3	85.3
Impact strength, 23° C	JIS K 7110	-	kJ/m <sup>2</sup>	83.4	83.4	83.4	83.4	83.4
Notched IZOD impact strength	ASTM D-256	-	J/m	847	847	847	847	847
<b>Thermal</b>								
Deflection temperature	ASTM D-648	-	°C	135	135	135	135	135
Linear expansion coefficient	ASTM D-696	-	1/°C	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>
Thermal conductivity	ASTM C-177	-	W/mK	0.20	0.20	0.20	0.20	0.20
Specific Heat	ASTM C-177	-	kJ/kgK	1.26	1.26	1.26	1.26	1.26
Heat shrinkage	JIS K 6745	-	%	-	-	-	-	-
Flammability	UL - 94 ASTM D-635	-	-	H-B self extinguishing	V-0 <sup>(2)</sup> HB <sup>(4)</sup> self extinguishing	(3mm):HB (4.8mm):HB, or V-0 <sup>1</sup> (6mm): V-0	(3mm):HB (4.8mm):HB, or V-0 <sup>1</sup> (6mm): V-0	(3mm):HB (4.8mm):HB, or V-0 <sup>1</sup> (6mm): V-0

<sup>1</sup>Special Fire Retardant PC upon request

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