MATERIAL PROPERTIES FOR PLASCORE COMPONENTS

The following information is provided by Plascore, Inc., as a general guideline for the performance and quality for the cleanroom wall components. The information is intended to be a general guideline, and may not address specific, custom situations which may appear on any particular project. Please consult Plascore, Inc., for any specific details.

PANEL STRUCTURAL PROPERTIES

Wall panels shall be designed and manufactured for use in wall systems requiring frequent demounting and changes. Panel shall be lightweight, resist warping and shrinkage, and shall allow easy cutting, routing, and drilling in the field.

Panels cut in the field (after cleaning) will not release particles nor do they require to be sealed after cutting.

Construction:	Skin Material:	aluminum sheet (0.032" thick typically)
	Core Material:	Plascore aluminum honeycomb PCGA ¾-1.8
	Adhesive:	Plascore epoxy
Weight:	1.3 pounds per square foot (±10%)	
Flatness:	< 0.007" bow per linear foot	
Length & Width:	± 1/16" of required dimension	
Thickness:	± 0.012" of nominal dimension	

PANEL FLAMMABILITY PROPERTIES

Test Method:	ASTM E84-84	
Panel Thickness:	0.25 – 2.00"	
Minimum Results:	Smoke	10.0
	Flamespread	10.0

PANEL COATING PROPERTIES

The coating materials shall not shed particles, not attract airborne particles, and be durable in a regular cleanroom environment.

Antistatic Properties (where applicable): The panel surface shall have a uniform electrical resistance across the entire panel surface. The uniformity of the surface resistance shall be established by using a 500 VDC Ohmmeter with (2) pointed contact probes. The contact probes shall be touching the surface of the panel 36" apart from each other and the initial reading shall be 20 k. One of the two probes shall then be dragged across the panel surface towards the other probe. The resistance reading

shall never vary more than 5 k.

The panel-to-ground resistance shall be measured by utilizing test methods and apparatus described in ASTM F150-72. The resistance to ground shall not exceed 50 k.

The panel conductivity from the front panel surface to the back panel surface shall be measured using the same apparatus as described in ASTM F150-72. Each probe shall contact one panel surface and be placed 36" apart. The resultant readings should not exceed 25 k.

Coating Properties:	Test Method:	Results:
Paint Adhesion	ASTM D3359 (method B)	5B
Pencil Hardness	ASTM D3363	> 3H
Impact Resistance	ASTM D2794 (2 lb, 1/2"ball)	1.5 X Mil T in-lbs
Tabor Abrasion	ASTM D4060-84 (CS 10, 100cycles)	10 mg maximum
Flexibility	ASTM D1737-62 (1/2" diameter)	pass
Chemical Resistance		(see Tables below)

TABLE I a (for Epoxy and Acrylic paints)

		Time of Exposure					
Chemical	Strength	10'	1 hr	3 hr	5 hr	8 hr	24 hr
Sulfuric acid	50%	0	0	0	0	0	0
Nitric Acid	50%	1	1	2	3	3	3
Hydrofluoric acid	50%	3	3	3	3	3	3
Ammonium Hydr.	30%	0	0	0	0	0	0
Sodium Hydroxide	50%	0	0	0	0	1	2
Hydrogen Peroxide	30%	0	0	0	0	1	3
Xylene	100%	0	0	0	0	0	0

0 - No attack
1- Surface slightly whitened
2 - Slightly whiter than 1
3 - Attacked - blistering

TABLE I b (for Polyester paints)

		Time of Exposure					
Chemical	Strength	10'	1 hr	3 hr	5 hr	8 hr	24 hr
Sulfuric acid	50%	0	0	1	1	1	1
Nitric Acid	50%	2	2	3	3	3	3
Hydrofluoric acid	50%	3	3	3	3	3	3
Ammonium Hydr.	30%	0	0	0	0	0	0
Sodium Hydroxide	50%	0	0	0	1	1	2
Hydrogen Peroxide	30%	0	0	3	3	3	3
Xylene	100%	0	0	0	0	0	0

0 - No attack
1- Surface slightly whitened
2 - Slightly whiter than 1
3 - Attacked - blistering

PANEL OUTGASSING PERFORMANCE

If requested, Plascore panels shall provide a certificate of compliance issued by an accredited testing laboratory that the following outgassing rates are not exceeded by the listed wall components when tested according to the test method provided.

Material:	Test Method:	Results:		
		ppm/mg	TML	CVCM
Wall panel skin material	ASTM E595	<.60	< 1%	< 1%
Wall panel core material	ASTM E595	<.15	< 1%	< 1%
Wall panel adhesive	ASTM E595	<.15	< 1%	< 1%

EXTRUSION STRUCTURAL PROPERTIES

Length:	± 0.032" of required dimension
Straightness:	0.125" x Length (feet)
Twist:	¼ degree per foot to a maximum of 3 degrees over length of part
Flatness:	0.004" x W (inches)

EXTRUSION COATING PROPERTIES

The coating materials shall not shed particles, not attract airborne particles, and be durable in a regular cleanroom environment.

Coating Properties:	Test Method:	Results:
Paint Adhesion	ASTM D3359 (method B)	5B
Pencil Hardness	ASTM D3363	> 3H
Tabor Abrasion	ASTM D4060 (CS 10, 100cycles)	10 mg maximum
Chemical Resistance		(see Tables below)

TABLE II a (for Epoxy and acrylic paints)

		Time of Exposure					
Chemical	Strength	10'	1 hr	3 hr	5 hr	8 hr	24 hr
Sulfuric acid	50%	0	0	0	0	0	0
Nitric Acid	50%	0	0	1	1	2	3
Hydrofluoric acid	50%	3	3	3	3	3	3
Ammonium Hydr.	30%	0	0	0	0	0	0
Sodium Hydroxide	50%	0	0	0	0	1	2
Hydrogen Peroxide	30%	0	0	0	0	1	3
Xylene	100%	0	0	0	0	0	0

0 - No attack
1- Surface slightly whitened
2 - Slightly whiter than 1
3 - Attacked - blistering

TABLE II b (for Polyester paints)

Chemical	Strength	Time of Exposure 10'	1 hr	3 hr	5 hr	8 hr	24 hr
Sulfuric acid	50%	0	0	1	1	1	1
Nitric Acid	50%	2	2	3	3	3	3
Hydrofluoric acid	50%	3	3	3	3	3	3
Ammonium Hydr.	30%	0	0	0	0	0	0
Sodium Hydroxide	50%	0	0	0	1	1	2
Hydrogen Peroxide	30%	0	0	3	3	3	3
Xylene	100%	0	0	0	0	0	0

0 - No attack
1- Surface slightly whitened
2 - Slightly whiter than 1
3 - Attacked – blistering

TABLE II c (for Anodized Surfaces)

Chemical	Strength	**Time of Exposure** 10’	1hr	3hr	5hr	8hr	24hr
Sulfuric acid	50%	0	0	0	0	0	0
Nitric acid	50%	0	0	1	1	2	3
Hydrofluoric acid	50%	3	3	3	3	3	3
Ammonium Hydr.	30%	0	0	0	0	0	0
Sodium Hydroxide	50%	0	0	0	0	1	2
Hydrogen Peroxide	30%	0	0	0	0	1	3
Xylene	100%	0	0	0	0	0	0

0 - No attack
1 – Surface slightly whitened
2 – Slightly whiter than 1
3 – Attacked - blistering

Please contact Plascore with any material properties questions or concerns.

(End of Section)