



SIGNAL MDO SIGN/INDUSTRIAL

Product Description:

Signal MDO is an MDO overlaid, hardwood faced plywood with tight core for superb machinability and weatherability. It is ideal for cutout letters & quality signs.

Panel Construction & Moisture Resistance:

Signal MDO is constructed of an MDO overlay on hardwood faced plywood with Douglas Fir/Hemlock inner plies. It is produced with a special 2 Step layup with minimal core voids, has a waterproof glue bond and meets APA PS 1-07 specifications. All Olympic products are made in the USA.



Features and Benefits:

- Tightly laid core for excellent machinability and weatherability
- Long term smooth surface for paints & coatings
- High strength, light weight; High Face/Edge screwholding
- Waterproof bond for water/high humidity resistance
- Very low Formaldehyde - meets proposed CARB requirements

Working Faces/Treatment:

Signal MDO is available with 2 working faces, consisting of natural (brown) overlays. Signal MDO is also available pre-primed.

Working Edges/Treatment:

- Edges are factory sawn, without edge treatment.
- Fill, prime & top coat all exposed wood with at least two coats of acrylic, polyurethane or polyurethane-acrylic primers & paints or exterior grade caulking.

Applications:

- Exterior letters, signage & bill boards
- Cabinet, display, fixture, shelving and workbench tops
- Pallets, bins, totes, crates & reels
- Agricultural & industrial wall lining; soffit & fascia, noise barrier
- Truck body & trailer liners & doors and boat seats
- Theatre/ movie set scenery

Limitations:

Signal MDO is not a finished product. It requires 2 top & 2 edge coats for prolonged exposure in exterior applications. For structural applications, consult Olympic Panel for load tables.

Thicknesses & Sizes:

Signal MDO is available in 3/8", 1/2", 5/8" & 3/4" thicknesses. Standard panel sizes are 4' X 8' & 10' only. Non standard thicknesses meeting volume requirements are available.

Product Grade

Standard product and special product are shipped allowing up to 10% total Good One Side (G1S) and/or Shop, identified & priced separately. Shipments of G1S and shop only may be available. Check with sales.

- **Tightly core = machining & weatherability**
- **Long term smooth surface for coatings**
- **High strength, light weight**
- **Water/high humidity resistance**

Technical Data Applicable Standards

All panels are manufactured by Olympic Panel Products per Product Standard PS1-07. This standard is available at www.apawood.org.

Physical Properties ¹	3/8" to 1/2"	5/8" to 3/4"
Modulus of Rupture ^{2,3}	6,905 psi	7,544 psi
Modulus of Elasticity ^{2,3}	846,890 psi	879,603 psi
Lineal Expansion ^{2,3}	0.045%	0.042%
Thickness Swell	3.4%	3.4%
Water Absorption (24 Hours)	6.0%	6.0%
Internal Bond ²	173 psi	206 psi
Shelf Stiffness EI ASTM D-3043 C	68,280 lb-in ² /ft ⁶	322,465 lb-in ² /ft ⁶
Shelf Bending FbS ASTM D-3043 C	1,625 lb-in/ft ⁶	4,785 lb-in/ft ⁶
Face Screw holding ²	414 lbs	454 lbs
Edge Screw holding ²	Not Applicable	422 lbs
Moisture Content ² ASTM D-1037	6-9%	6-9%
Specific Gravity ² ASTM D-1037	.572	.592
Density ² ASTM D-1037	35.6 lbs/ft ³	36.9 lbs/ft ³
Flame Spread ASTM E-84	76 – 200 ⁵	76 – 200 ⁵
Smoke Developed ASTM E-84	25 – 270 ⁵	25 – 270 ⁵
Flame/Smoke spread rating E-84	Class C	
Formaldehyde level E-1333	< 0.01 parts/million	

Panel Tolerances ²	3/8" to 3/4"
Thickness Tolerance	+/- 1/64" (.016")
Length & Width Tolerance	+0, -1/16" (.062")
Squareness	1/16" (.062")
Straightness	1/16" (.062")

¹5 Panel Average. Product averages vary for individual thicknesses, consult sales or technical staff for exact properties ²All tolerances and specifications apply at the time of manufacture. ³ANSI 208.1 test result

³Calculations based on test averages of along and across grain

⁴Shelving physical properties based on limited 5 panel average. See web site for load table

⁵Flame and Smoke spread properties based on engineering calculations

⁶Shelving stiffness/bending properties are based on a limited 5 panel average

Weatherability

EMMAQUA* Outdoor Accelerated Weathering Test Simulates 3.4 years in Florida and 2.9 years in Arizona					
Test	CHALK UNWSH	COLOR CHNGE UNWSH	CRACK UNWSH	BLIST UNWSH	CHECK UNWSH
ASTM #	D 4214-97	D1729-96 (2003)	D661-93 (2000)	D 714-02	D660-93 (2000)
Chromatic	Barely Traceable	Moderate Bleaching	None	None	None
Oil Alkyd	Moderate	Moderate Bleaching	Moderately Severe Long Line	None	None
Acrylic Latex	Trace	None	Barely Traceable Irregular	None	None

*Equatorial Mount with Mirrors for Acceleration with Water

CHALK UNWSH = Chalking, Unwashed Area: ASTM D 4214-97 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films (Method A/Cloth Method)

COLOR CHNGE UNWSH = Visual Color, Unwashed Area: ASTM D1729-96 (2003) - Practice for Visual Appraisal of Color and Color Difference of Diffusely-Illuminated Opaque Materials

CRACK UNWSH = Cracking, Unwashed Area: ASTM D661-93 (2000) - Method for Evaluating Degree of Cracking of Exterior Paints

BLIST UNWSH = Blistering, Unwashed Area: ASTM D 714-02 - Method for Evaluating Degree of Blistering of Paints

CHECK UNWSH = Check, Unwashed Area: ASTM D660-93 (2000) - Method for Evaluating Degree of Checking of Exterior Paints

Standard Packaging:

Thickness	Signal MDO Average* Weight lbs/SF	Signal MDO Average* Weight lbs/panel	Pieces per Unit
3/8"	1.250	40.0	88
1/2"	1.548	49.5	66
5/8"	1.800	57.6	50
3/4"	2.230	71.4	44

Average product weights may vary +/- 10%

Signal MDO Shelving Load Span Table

Span ¹	1/2"		5/8"		3/4"	
	ℓ/240	ℓ/180	ℓ/240	ℓ/180	ℓ/240	ℓ/180
4"	1,899	1,899	2,340	2,340	2,870	2,870
8"	730	730	900	900	1,104	1,104
12"	414	414	557	557	683	683
16"	233	233	367	367	495	495
19.2"	155	162	255	255	405	405
24"	80	104	163	163	307	307
30"	41	54	85	104	170	196
32"	33	44	70	92	141	173
36"	23	31	49	66	100	133
40"		22	36	48	73	98
48"			24	32	49	65
60"					24	32

Span ¹	1/2"		5/8"		3/4"	
	ℓ/240	ℓ/180	ℓ/240	ℓ/180	ℓ/240	ℓ/180
4"	1,457	1,457	1,811	1,811	2,208	2,208
8"	560	560	696	696	849	849
12"	307	307	431	431	526	526
16"	173	173	289	289	381	381
19.2"	111	120	201	201	312	312
24"	55	74	128	128	230	230
30"	28	37	82	82	129	147
32"	23	30	71	72	106	129
36"		21	50	57	74	99
40"			36	46	54	72
48"			24	32	35	47
60"						23

Span ²	1/2"		5/8"		3/4"	
	ℓ/240	ℓ/180	ℓ/240	ℓ/180	ℓ/240	ℓ/180
4"	2,374	2,374	2,926	2,926	3,588	3,588
8"	913	913	1,125	1,125	1,380	1,380
12"	307	410	609	652	854	854
16"	125	167	257	343	507	619
19.2"	71	94	147	197	296	394
24"	35	47	74	99	151	202
30"		23	37	50	77	102
32"			31	41	63	84
36"			21	28	44	59
40"				20	32	42
48"					21	28

Span ²	1/2"		5/8"		3/4"	
	ℓ/240	ℓ/180	ℓ/240	ℓ/180	ℓ/240	ℓ/180
4"	1,822	1,822	2,263	2,263	2,760	2,760
8"	690	690	870	870	1,062	1,062
12"	221	295	514	514	657	657
16"	87	116	270	289	395	476
19.2"	48	64	152	201	224	299
24"	24	32	75	100	112	149
30"			37	50	56	74
32"			30	41	46	61
36"			21	28	32	42
40"				20	23	30

Maximum allowable loads are psf. Uniform loading is assumed. Loads are for dry conditions. For wet conditions, reduce loads approximately 25%. Inquire for precise data. Basic allowable stresses (bending F_b and shear F_v) increase 15% for shelving use per the APA experience factor. Pallet design normally is based on higher allowable loads than given. NOTES: ¹Spans are center-to-center of supports. ²Span is out-to-out of supports. Allow for 1-1/2" supports on each end.

Signal MDO Finishing Instructions

General: Do not use interior grade paints, water base vinyl-acrylic, solvent based alkyd flat or alkyd solid color stains.

- Coating system:** Use a high quality exterior industrial enamel:
 - Water Based: All-Acrylic semi-gloss or gloss enamel system or
 - Solvent Based: Industrial semi-gloss or gloss enamel system.
 - Sign Chromatic based: Semi-gloss or gloss system.

Application: Follow overcoat producer instructions. Use good painting practices. Perform a tape pull test (ASTM D3359) before lettering.

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Specifications subject to change without notice.

Effective: 11/2007; Replaces: 8/2007

- Prime Coat:** For good performance, 2 coats of primer should yield about 1 mil dry film thickness. Latex primers are recommended. Follow the spreading rate recommended by the manufacturer.
- Top Coat:** Once properly primed, panels must be top-coated with 2 coats of a variety of finishes, including solvent-thinned and water-thinned paints and enamels. Both primer and topcoat should be obtained from the same manufacturer to ensure compatibility. Follow the manufacturer's application instructions. Do not apply automotive primers and enamels, lacquer undercoats and topcoats directly to overlaid plywood.
- Edge Coating:** Fill, prime & top coat all exposed wood with at least two coats of acrylic, polyurethane or polyurethane-acrylic primers & paints or exterior grade caulking.

Suitability for Use and Warranty

Nothing herein constitutes a warranty express or implied, including any warranty of merchantability or fitness for use, nor is protection from any law or patent to be inferred. The exclusive remedy for all claims is replacement of materials. Contact the sales office for a copy of the complete Olympic Terms and Conditions of Sale.

Warehouse Storage and Handling

- Store in a dry, clean, well-ventilated area indoors.
- Avoid temperatures and moisture extremes. Allow panels to equalize for 72 hours or more before use.
- Pieces must not be stored in contact with the ground.
- Limit the stacking height to four or five units. Separate units with clean, dry spacers of uniform thickness, aligned carefully. Use three spacers for panels 8' long, four or five spacers for longer panels.

Environmental Impact

Olympic Panel produces overlaid softwood plywood from veneer peeled at the Olympic plant and from purchased veneer. All veneer and plywood panels are manufactured in accordance with the following principals:

- Logs and veneer originate in sustainable, secondary growth forests, which are managed according to Federal and State laws and regulations.
- Olympic Panel uses energy efficient, environmental control technology to reduce emissions to levels below federal and state guidelines.
- Olympic Panel uses process by-products to produce energy.
- Olympic's products are renewable, biodegradable and recyclable.

Warnings

This product contains < 0.01 parts/million of residual formaldehyde from manufacturing. This product will generate wood dust from sawing, sanding, or shaping. Material Safety Data Sheets are available on Olympic's Web site at www.olypanel.com and upon request. Structural panels (PS-1) are exempt from California Air Resources Board regulations, however, this product is below CARB limits for all uses.

Sign Board

- **Highway® HDO** - Premium sign panel, prepped for reflective film.
- **SignReady UV™** - Prefinished, high gloss, paint/vinyl letter ready, 5 yr limited warranty.
- **Pre-finished UV™** - Prefinished, satin gloss, paint/vinyl letter ready, 2 yr limited warranty.
- **Signal® MDO** - Two Step®, hardwood faced, tightly laid core, ideal for cutout letters.
- **Pre-Primed MDO** - Exclusive, primed overlay, Two Step®.
- **Crezon®/Two Step® MDO** - Premium paint grade.
- **Guardian® MDO** - Standard paint grade.

Olympic Panel Technical/Sales Information

204 East Railroad Avenue; Shelton, WA 98584

Sales phone: 800-782-7265 Sales Fax: 360-432-5081

www.olypanel.com

