



CREZON®/TwoStep® MDO SIGN/INDUSTRIAL

Product Description:

Crezon®/TwoStep® MDO is a premium, unfinished, paint grade, MDO plywood which provides a superior surface for finishing.

Panel Construction & Moisture Resistance:

Crezon®/TwoStep® MDO constructed of an MDO overlay on plywood with Douglas Fir/Hemlock construction. It is produced with a 2 Step layup, has a waterproof glue bond and meets APA PS 1-07 specifications. All Olympic products are made in the USA.



Features and Benefits:

- Economical, uniform smooth surface for high quality paints
- Superior surface & life
- Waterproof bond for water/high humidity resistance
- High Face/Edge screwholding
- Very low Formaldehyde - meets proposed CARB requirements

Working Faces/Treatment:

Crezon®/TwoStep® MDO is available with 1 or 2 working faces. Panels with a single working face are available with no backer (standard) or an optional backer. The working face is consists of natural (brown), resin impregnated MDO cellulose overlay.

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 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:

Crezon®/2 Step 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:

Crezon® /2 Step MDO is available in 5/16", 3/8", 1/2", 5/8", 3/4" & 1-1/8". thicknesses. Standard panel sizes are 4' X 8' & 10' only. Non standard thicknesses meeting volume requirements are available.

Product Grade

Standard products are shipped 100% on grade, unless specified otherwise. Special products 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.

- **Economical, multiuse panel**
- **Uniform smooth surface for coatings**
- **Superior surface & panel life**
- **Waterproof bond for water/high humidity**

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 1-1/8" |
|---|--|---|
| Modulus of Rupture ^{2,3} | 6,670 psi | 6,860 psi |
| Modulus of Elasticity ^{2,3} | 795,050 psi | 853,565 psi |
| Lineal Expansion ^{2,3} | 0.056% | 0.050% |
| Thickness Swell | 3.8% | 3.8% |
| Water Absorption (24 Hours) | 6.0% | 6.0% |
| Internal Bond ² | 180 psi | 134 psi |
| Shelf Stiffness EI ASTM D-3043 C | 74,770 lb-in ² /ft ⁶ | 606,720 lb-in ² /ft ⁶ |
| Shelf Bending Fbs ASTM D-3043 C | 1,615 lb-in/ft ⁶ | 6,460 lb-in/ft ⁶ |
| Face Screw holding ² | 430 lbs | 449 lbs |
| Edge Screw holding ² | Not Applicable | 408 lbs |
| Moisture Content ² ASTM D-1037 | 6-9% | 6-9% |
| Specific Gravity ² ASTM D-1037 | .592 | .527 |
| Density ² ASTM D-1037 | 36.9 lbs/ft ³ | 32.9 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" | 1" & greater |
|-------------------------------|--------------------|--------------------|
| Thickness Tolerance | +/- 1/32" (.031") | +/- 5% |
| Length & Width Tolerance | +0, -1/16" (.062") | +0, -1/16" (.062") |
| Squareness | 1/16" (.062") | 1/16" (.062") |
| Straightness | 1/16" (.062") | 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 | Crezon® /2 Step Face, No Back Average* Weight lbs./SF | Crezon® /2 Step 2 Face Average* Weight lbs./SF | Pieces per Unit |
|-----------|---|--|-----------------|
| 5/16" | .850 | .970 | 105 |
| 3/8" | 1.080 | 1.100 | 88 |
| 1/2" | 1.550 | 1.600 | 66 |
| 5/8" | 2.000 | 2.050 | 50 |
| 3/4" | 2.100 | 2.200 | 44 |
| 1-1/8" | 3.350 | 3.400 | 30 |

Average product weights may vary +/- 10%

Crezon®/TwoStep® 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" | 452 | 452 | 557 | 557 | 683 | 683 |
| 16" | 301 | 323 | 404 | 404 | 495 | 495 |
| 19.2" | 176 | 225 | 331 | 331 | 405 | 405 |
| 24" | 90 | 121 | 175 | 230 | 227 | 303 |
| 30" | 46 | 61 | 91 | 121 | 120 | 160 |
| 32" | 38 | 50 | 75 | 100 | 99 | 133 |
| 36" | 26 | 35 | 53 | 70 | 70 | 94 |
| 40" | | 26 | 38 | 51 | 52 | 69 |
| 48" | | | 25 | 34 | 34 | 46 |
| 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" | 347 | 347 | 431 | 431 | 526 | 526 |
| 16" | 229 | 251 | 280 | 280 | 381 | 381 |
| 19.2" | 130 | 173 | 195 | 195 | 312 | 312 |
| 24" | 65 | 86 | 125 | 125 | 230 | 230 |
| 30" | 32 | 43 | 76 | 80 | 145 | 147 |
| 32" | 27 | 35 | 63 | 70 | 119 | 129 |
| 36" | | 25 | 44 | 55 | 83 | 102 |
| 40" | | | 32 | 42 | 61 | 81 |
| 48" | | | 21 | 28 | 40 | 53 |

| 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" | 349 | 465 | 652 | 697 | 814 | 854 |
| 16" | 142 | 189 | 275 | 367 | 357 | 476 |
| 19.2" | 80 | 107 | 158 | 211 | 208 | 278 |
| 24" | 40 | 53 | 80 | 106 | 106 | 142 |
| 30" | 20 | 26 | 40 | 53 | 54 | 72 |
| 32" | | 22 | 33 | 44 | 44 | 59 |
| 36" | | | 23 | 30 | 31 | 41 |
| 40" | | | | 22 | 22 | 30 |
| 48" | | | | | | 20 |

| 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" | 701 | 701 | 870 | 870 | 1,062 | 1,062 |
| 12" | 259 | 345 | 498 | 498 | 657 | 657 |
| 16" | 102 | 136 | 237 | 280 | 446 | 476 |
| 19.2" | 57 | 75 | 133 | 177 | 253 | 337 |
| 24" | 28 | 37 | 66 | 88 | 126 | 168 |
| 30" | | | 33 | 44 | 63 | 84 |
| 32" | | | 27 | 36 | 51 | 69 |
| 36" | | | | 25 | 36 | 48 |
| 40" | | | | | 26 | 34 |

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.

Crezon®/TwoStep® 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.

Crezon® is a registered trademark of Dynea

Olympic Panel Technical/Sales Information

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