surf(x)® 3D Laminates by OMNOVA Solutions, provide a highly flexible surface, which allows them to be membrane-pressed or vacuum-formed to achieve continuous multi-dimensional surface profiles - eliminating the need for T-molding, edgebanding, visible seams and special edge treatments. Elimination of seams helps mitigate the accumulation of potential contaminants and simplifies cleaning.

surf(x) 3D Laminates provide an increased level of impact, scratch, marring, chemical and abrasion resistance when compared to standard thermofoils. Their increased stain and impact resistance make them especially suited for horizontal and vertical surfaces - such as retail fixtures, work surfaces, counters and table tops.

Applications
- Cabinet doors & drawer fronts
- Closet systems
- Desks & furniture components
- Store fixtures
- Table tops
- Chair seats & backs

Benefits
INCREASED DURABILITY
surf(x) 3D Laminates offer our highest level of durability. They also deliver increased resistance to impact, abrasion, marring and scratching.

DIMENSIONAL FLEXIBILITY
Easily conform to three-dimensional surfaces. Provide an attractive, seamless appearance well suited for cabinet doors and drawer fronts.

DURABILITY
Abrasion and scratch resistance provide a long-lasting “like-new” appearance.

CLEANABILITY

CUSTOMIZABLE
You can specify colors, patterns and embossings to quickly and easily create unique or differentiated products. To help you, OMNOVA offers our experienced, full service approach to custom design and production.

TFL COLOR MATCHING
OMNOVA's TFL Color Matching Program identifies which of our 3D Laminates closely approximates the color of a number of popular thermally fused laminates (TFL) available in today's market. To download a copy of our current Laminate Color Match Reference Guide, visit: www.omnova.com/laminates-matches.aspx.

TECHNICAL CAPABILITY
Our experienced associates can provide technical product information to assist you with your laminate selection. In addition, OMNOVA offers field technical support to aid process start-up and troubleshooting.

AVAILABILITY
STOCK products are available in low minimum order quantities for shipment. MAKE-TO-ORDER products are not maintained in inventory but can be custom ordered. OMNOVA's domestic production eliminates the long lead times caused by off-shore supply and helps reduce product development cycle times.
TYPICAL PROPERTIES

PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>Usable Film Widths*</th>
<th>50&quot;, 57&quot; and 62&quot; (+/- 0.5&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Film Thickness</td>
<td>8 - 16 mil (0.008 - 0.016&quot;) (+/- 5.0%)</td>
</tr>
<tr>
<td>Roll Lengths</td>
<td>50 and 250 linear yards</td>
</tr>
</tbody>
</table>

* Actual film width is wider

TYPICAL PROPERTIES COMPARISON

<table>
<thead>
<tr>
<th>Test Method</th>
<th>surf(x)</th>
<th>HPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoffman Scratch</td>
<td>1300 g</td>
<td>1000 g</td>
</tr>
<tr>
<td>Burnish</td>
<td>None / Slight</td>
<td>Slight</td>
</tr>
<tr>
<td>MEK Double Wipes</td>
<td>&lt; 50</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>NEMA Wear (initial)</td>
<td>750 cycles</td>
<td>300 cycles</td>
</tr>
<tr>
<td>NEMA Cleanability (initial)</td>
<td>13 / 17** (see below)</td>
<td>10</td>
</tr>
<tr>
<td>NEMA Ball Impact</td>
<td>3000 mm</td>
<td>1100 mm</td>
</tr>
<tr>
<td>NEMA Boiling Water</td>
<td>None / Moderate</td>
<td>None</td>
</tr>
</tbody>
</table>

** Actual results may vary depending on color - lighter shades are more susceptible to staining.

STAIN RESISTANCE** *(See NEMA LD 3-2005 for full description.)

<table>
<thead>
<tr>
<th>Staining Agent</th>
<th>Printed</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distilled Water</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ethyl Alcohol / Water</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acetone</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Household Ammonia</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Citric Acid 10%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vegetable Oil</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Coffee</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tea</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tomato Ketchup</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mustard</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>10% Iodine</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Black Permanent Marker</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>#2 Pencil</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Wax Crayon</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Black Shoe Polish</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Required Cleaning Step to Remove Stain

<table>
<thead>
<tr>
<th>Cleaning Step Description</th>
<th>(In order of use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - Removed with water</td>
<td></td>
</tr>
<tr>
<td>1 - 25 cycles spray cleaner or sponge</td>
<td></td>
</tr>
<tr>
<td>2 - 25 cycles baking soda plus spray cleaner on brush</td>
<td></td>
</tr>
<tr>
<td>3 - Acetone and cotton ball</td>
<td></td>
</tr>
<tr>
<td>4 - Bleach plus cotton ball</td>
<td></td>
</tr>
<tr>
<td>5 - Not removed</td>
<td></td>
</tr>
</tbody>
</table>

** Actual results may vary depending on color - lighter shades are more susceptible to staining.

KCMA CHEMICAL RESISTANCE (9.3)

<table>
<thead>
<tr>
<th>Staining Agent</th>
<th>Results*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinegar</td>
<td>No Effect</td>
</tr>
<tr>
<td>Lemon Juice</td>
<td>No Effect</td>
</tr>
<tr>
<td>Grape Juice</td>
<td>No Effect</td>
</tr>
<tr>
<td>Orange Juice</td>
<td>No Effect</td>
</tr>
<tr>
<td>Tomato Ketchup</td>
<td>No Effect</td>
</tr>
<tr>
<td>Coffee</td>
<td>No Effect</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>No Effect</td>
</tr>
<tr>
<td>Alcohol, 100 Proof</td>
<td>No Effect</td>
</tr>
<tr>
<td>Detergent Solution</td>
<td>No Effect</td>
</tr>
<tr>
<td>Mustard</td>
<td>Moderate Effect</td>
</tr>
</tbody>
</table>

* Results
No Effect = No discoloration or stain after cleaning immediately with water. Moderate Effect = Slight stain or discoloration apparent after cleaning. Severe Effect = Definite stain after cleaning, remaining after 14 days.

For the latest designs, more information or to place an order, contact OMNOVA Solutions:
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