INTRODUCING: Preservative-Treated Yellow Poplar

An abundant, economical hardwood species with excellent paint-holding properties can be effectively protected by pressure treatment.

Because of its abundance and workability, yellow poplar was frequently used as a building material, especially for residential siding, from colonial times until early 1900s. Current uses include furniture, cabinets, millwork, and trim because it is readily painted or stained. However, new-growth yellow poplar is susceptible to fungal decay in exposed applications, significantly reducing its desirability as siding.

Pressure-treatment with Wolman® AG preservative enables today’s yellow poplar to resist fungal decay in exterior, above-ground applications, and the treatment does not impair paintability.

Research conducted at Purdue University, Mississippi State University, and other institutions, concluded:

- Specimens of new-growth yellow poplar, pressure-treated with Wolman® AG preservative and water repellent, are as decay resistant as similarly treated (and commercially accepted) southern pine.
- Paint adhesion testing of specimens suggests no reduction in paint weathering compared to yellow poplar pre-treated with Woodlife® coating.
- Treated new-growth yellow poplar is acceptable for above-ground use.

YELLOW POPLAR
Liriodendron tulipifera or tulip tree

- Tall, straight-trunked hardwood
- Common in eastern third of the United States
- Abundant and relatively inexpensive
- Fast-growing, fast-drying, easily worked
- Paint-holding characteristics similar to those of western red cedar
- Readily stained
- Susceptible to fungal decay

At top 1, is a 1-1/2 story house built in 1846 to which a breezeway and gable-end garage were added (2) in 1993. The original house was sided with old-growth yellow poplar and has experienced no problems. The addition is sided with new-growth yellow poplar. Rot was discovered after five years in the newer siding in laps beneath the garage window.

Inset picture (3) shows rot on the top edge of the lap below the removed piece of siding. Also, water stain is seen on the Tyvek® house wrap, which traps moisture against the backs of the siding.

In 4, deteriorated new-growth yellow poplar is seen next to its replacement. The poplar is deteriorating on the facade (5) of a Main Street store in Lafayette, IN.
Weathering Performance of Painted Wood

![Graphs showing paint cracking and flaking performance of western red cedar and yellow poplar over time.](Image)

**Results for yellow poplar are very similar to those of western red cedar, a wood commonly chosen for siding and exterior residential uses. All samples were coated with Woodlife® water repellent preservative followed by a 100% acrylic resin latex. Western red cedar with Woodlife® coating is the accepted standard for superior paint life. Tests were conducted at the Wood Research Laboratory, Purdue University.**

Comparative Decay Resistance of New-Growth Specimens

**AWPA E10-08 (Soil Block)**

<table>
<thead>
<tr>
<th>Percent Decay (Standard Deviation)</th>
<th>Yellow Poplar</th>
<th>Southern Pine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sapwood</td>
<td>78 (2)</td>
<td>58 (7)</td>
</tr>
<tr>
<td>Heartwood</td>
<td>68 (5)</td>
<td>48 (8)</td>
</tr>
<tr>
<td>Untreated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated</td>
<td>3 (4)</td>
<td>1 (0.6)</td>
</tr>
<tr>
<td></td>
<td>7 (3)</td>
<td>1.4 (0.3)</td>
</tr>
</tbody>
</table>

1. For comparison, results for old-growth = 28 (7)
2. For comparison, results for old-growth = 32 (26)

Treated samples showed markedly less decay than untreated specimens. Conducted at Mississippi State University, this test used 19mm blocks exposed to brown rot for three months. Test blocks were pressure-treated with Wolman® AG preservative.

Yellow Poplar Paint Adhesion

**ASTM D 3357-08 (Adhesion by Tape Test)**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>First Test</th>
<th>Second Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Control (yellow poplar + Woodlife®)</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Wolman® AG only</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Wolman® AG + Woodlife®</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Wolman® AG + water repellent</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

*Purdue verified superior paint life

Samples pressure-treated with Wolman® AG preservative and Wolman® AG + water repellent demonstrated adhesion superior to that of the Control. Tests were conducted by Leavitt and Hunt, Wood Research Laboratory, Purdue University.

**Wolman® AG Preservative**

- Non-metallic, colorless, carbon-based, low-impact preservative
- Listed in AWPA standards as PTI (Propiconazole Tebuconazole Imidacloprid) for above-ground applications of southern pine
- Manufactured by Arch Treatment Technologies, Inc. and used in Wolmanized® L3 Outdoor® wood

For more information, contact Arch Chemicals, Inc., 678-627-2000.

Woodlife is a registered trademark of Zinsser Co., Inc. Wolman, Wolmanized, and Outdoor are registered trademarks of Arch Wood Protection, Inc.