Agenda

A. What causes staining in lumber?
B. How to mitigate the problem?
C. What are the different application methods for treating lumber?
D. What are the different types of anti-stain products used for treating lumber?
E. Why should I treat my lumber?
F. What’s important when selecting a supplier of wood treatment products?
G. Q & A
What causes staining?

**Microbial:** def relating to or characteristic of a microorganism, especially a bacterium causing disease or fermentation.

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<th>Usually caused by fungi, and sometimes bacteria</th>
<th>Discolored wood more permeable than normal wood</th>
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<td>Occurs in the sapwood</td>
<td>May be associated with beetle damage</td>
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<td>In log or lumber cross-sections, usually appear wedge-shaped radially-oriented discolored (bluish or black) areas along the rays</td>
<td>If confined to lumber surfaces, (mold Fungi) discolorations can be removed by surfacing the lumber</td>
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<tr>
<td>Appear microscopically on the surface as pigmented spores that are spherical, oval, or other shapes or internally as pigmented thread-line strands</td>
<td>Can be prevented by rapid utilization or water-storage of logs and treatment of freshly-sawn lumber with anti-sapstain chemicals</td>
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<tr>
<td>Usually develops in logs due to poor inventory control and/or lack of water storage</td>
<td>Cannot be controlled by log fumigation or mechanically stressing the lumber</td>
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Source: Mississippi State FWRC
What causes staining?

Non-microbial – discolorations differ from mold stains in that no microbial activity is necessary for coloration/stain development.

Mitigating the problem?

Most hardwood and softwood lumber, both freshly sawn and kiln dried, are susceptible to discolorations (i.e. staining) from microbial and/or non-microbial factors.

The following steps will help you minimize the problem:

- Treatment should begin within 24 hours of a tree being felled
- Control log storage with “first in-first out” of inventory
- End sealing logs will help deprive oxygen to the organisms
Mitigating the problem?

The following steps will help you minimize the problem (continued):

- For green lumber waiting to go into a dry kiln, promoting air drying (i.e. stickering) is essential.
- Protect the tops and sides of bundles (i.e. Shade-Dri) from the sun and rain.
- Packs of lumber should be kept 6 to 8 inches off the ground, gravel or concrete pads are preferred.

- Lumber storage sites should be clean, flat, dry, well drained and well ventilated.
- Area should be clear of debris, vegetation etc… to minimize insect population.
- Dried lumber should be kept in a shed or wrapped to prevent rewetting.
- Limit unwanted fungal growth with good inventory management and delivery planning.
- Implement a sapstain and ironstain control program.
Different application methods?

Spray Systems -  
Dip Tanks -

Different types of anti-stain products?

1930’s to 1990:
Mercurial Compounds, Chloropenols + Mercurial Compounds, Noxtane, Permatox 100, 101 etc., Chlorophenols + Borates
Post PCP’s – TCTMTB, MTB, Cu-8, NaOPP, Carbendazim and Chlorothalonil
Mid – 90’s: Propiconazole was introduced... less toxic, more environmentally friendly. Bi - active ingredients introduced – IPBC, IPBC/QUAT(ddac), QUAT/Borates, Triazoles etc...
2000’s: Tri-active ingredients introduced to provide broader fungal protection – IPBC/Triazoles, IPBC/Triazoles/ADBAC and IPBC/Triazoles/DDAC
West region custom formulate blends to provide optimum protection against mold and stain fungi.
ALL sapstain control products must be registered with the Environmental Protection Agency (EPA) - Federal and State and the Pesticide Management Protection Agency (PMRA) in Canada

Source: Canadian wood Preservation Association
Benefits to treating lumber

Improving the physical appearance, adds value to your lumber
Discoloration / staining lowers the value of your lumber
Avoid rejections and claims… they can be costly!
Don't be left behind… what is your competition doing?
Customers want the highest quality lumber, and some are willing to pay for it

Help differentiate yourself, add profit to your bottom-line!
Selecting a Supplier

Improving the physical appearance of your lumber and increasing your profits is dependent, in part, on selecting the right supplier. Questions to ask:

1. Examine the safety and compliance profile of available anti-stain products
   a. Is the product a potential carcinogen?
   b. Is the product biodegradable?
   c. Does the product generate an offensive odor?
   d. Is the product registered with the EPA?
   e. What kind of safety and compliance training is offered?
   f. Etc...

Questions to ask (continued):

1. What are the product’s features /benefits?
   a. What is the average dip time required for the product to be effective?
   b. Does the product need to be agitated constantly in order for the active ingredients to stay suspended?
   c. How effective is the brightener? Does my lumber “pop?”
   d. What are the active ingredients? Does it fight against a broad spectrum of fungi?
   e. Does the product have a corrosion inhibitor?
   f. How long will the anti-stain protect my lumber?
Selecting a Supplier

Questions to ask (continued):

3. Run a comparative cost analysis:
   a. What are the recommended dilution ratios for the application?
   b. Calculate the total cost per gallon of product including, freight, recycling fees etc..
   c. Divide the total cost per gallon by the dilution rate to determine the actual Read-To Use (RTU) value

Selecting a Supplier

Questions to ask (continued):

4. What do I know about the supplier?
   a. Is the supplier a manufacturer of the products or a distributor?
   b. Does the supplier have reliable delivery services in the region?
   c. Can the supplier provide application equipment and perform repair and maintenance?
   d. Does the supplier provide operator training and safety seminars?
   e. Will the supplier be there to handle initial charge and train your employees?
   f. Can you trust this supplier?
Treatments to Control Stain