

# WHITE BIRCH

Botanical Name:

*Betula papyrifera*, Marsh.

A native British Columbian species, this tree is easily recognized by its smooth, white peeling bark. Intolerant of shade, white birch thrives on burned-over and cutover areas. It is found throughout the British Columbia Interior, but only in a few scattered places on the Coast. Birch constitutes less than 1% of the province's total growing stock.

## Common Uses

Commercially, white birch is used for lumber, veneer, plywood and pulpwood. White birch has the potential to produce high-value lumber. Furniture, cabinets, flooring and other millwork items are made from birch lumber and veneers. The species has long been a favourite of the wood turning industry for products such as bobbins, clothespins, spools, broom handles, dowels, shoe shanks, peg, and toys. It is also well suited for making ice cream sticks, picnic spoons, and toothpicks because it is uniform in texture has a smooth and white appearance, and has no odour or taste. White birch has commonly been used as fireplace and wood stove fuel because it has a high heating value. In addition, the sap of white birch is made into syrup (though requiring 2 to 3 times more sap than sugar maple).



WHITE BIRCH



White birch lumber is dried according to end-use and customer specifications. Kiln drying inhibits natural staining of the wood, improves its strength and stiffness, enhances its appearance, and increases its resistance to decay and attack by insects.

| PHYSICAL PROPERTIES             |                  |       |
|---------------------------------|------------------|-------|
| DENSITY (kg/m <sup>3</sup> )    | Green            | 506   |
|                                 | Air Dry          | 571   |
| SPECIFIC GRAVITY (12% M.C.)     | Standard         | 0.51  |
| HARDNESS (N)                    | Side             | 4320  |
|                                 | End              | 4350  |
| MOE (Mpa)                       | Green            | 10000 |
|                                 | Air Dry          | 12900 |
| MOR (Mpa)                       | Green            | 47.2  |
|                                 | Air Dry          | 34.8  |
| COMPRESSION PARALLEL (Mpa)      | Air Dry          | 44.7  |
| COMPRESSION PERPENDICULAR (Mpa) | Air Dry          | 6.87  |
| SHEAR (Mpa)                     | Air Dry          | 11.27 |
| CLEAVAGE (N/mm Width)           | Air Dry          | 84.9  |
| SHRINKAGE                       | Radial (OD)      | 5.2%  |
|                                 | Tangential (OD)  | 7.2%  |
|                                 | Volumetric (OD)  | 13.8% |
|                                 | Volumetric (air) | 10.5% |
|                                 | Tang / Rad ratio | 1.4   |



| VISUAL PROPERTIES   |  |
|---|--|
| COLOUR  |  |
| Heartwood   | Ash-gray colour. Dark or reddish-brown discolouration occurs naturally in heartwood. |
| Sapwood   | Whitish-yellow.  |
| Heartwood / Sapwood Contrast  | From very little to marked contrast.   |
| Latewood / Earlywood Contrast   | Growth rings are indistinct in this diffuse-porous hardwood.                         |
| GRAIN   |  |
| Straight-grained with a fine and uniform texture.   |  |
| FIGURE  |  |
| Plainsawn lumber or rotary-cut veneer: Faint growth ring.<br>Quartersawn lumber or quarter-sliced veneer: None<br>Other: Growth ring figure is faint. Pith flecks are usually numerous.   |  |
| KNOTS   |  |
| N/A   |  |
| OTHER   |  |
| The wood has no characteristic odour or taste. White birch is moderately hard, heavy and strong. It is generally lighter than yellow birch. White birch does not have the superior figure and colour of yellow birch and is much lower in resistance to suddenly applied loads. |  |

| WORKING PROPERTIES          |                                   |   |
|-----------------------------|-----------------------------------|---|
| PROCESS                     | PERFORMANCE                       | COMMENTS  |
| <b>MACHINING</b>            |                                   |   |
| Planing                     | Excellent planing quality         | Recommended planer settings: 12° or 20° hook angle and 12, 16 or 20 kmpi (knife marks per inch).  |
| Turning                     | Excellent surface quality.        |   |
| Sawing                      | Easy                              | Good working qualities. Easy to work with hand tools.   |
| Boring                      | Excellent                         | Excellent boring quality when either brad point or single twist bits are used.  |
| Mortising                   | Excellent                         | Excellent mortising quality when using a hollow chisel mortise.   |
| Shaping                     | Good to excellent shaping quality |   |
| Veneering                   | Good                              | Slight tendency to split during drying.   |
| Sanding                     | Very good                         |   |
| <b>FASTENING</b>            |                                   |   |
| Screwing                    | Excellent holding                 | Poor resistance to splitting. Average screw retention: 723 lb.  |
| Nailing                     | Good                              | Has a tendency to split. Once nailed, the wood holds nails well.  |
| Nail Retention              | Moderate                          |   |
| Gluing                      | Moderately easy                   | Bonds very easily with adhesives of a wide range of properties, and under a wide range of bonding conditions.   |
| <b>FINISHING</b>            |                                   |   |
| Staining                    | Satisfactory                      | Very smooth finish achieved. Natural finish is best. Uneven colours become apparent as stains become darker. Could have pigment finish applied very easily with good results. |
| Painting                    | Good to excellent                 |   |
| Lacquering                  | Good                              | Performed well in the tape test.  |
| Waxing                      | Excellent                         |   |
| <b>HEARTWOOD DURABILITY</b> |                                   |   |
| Natural Decay Resistance    | Not resistant                     |   |
| Treatability                | Treats well                       |   |

## Commercial Availability

White birch is of moderate availability. Appearance and millworking grades are produced according to National Hardwood Lumber Association (NHLA) rules. Common grades include Select and better, #1 shop, and framegrade.



Data for this factsheet has been compiled by Forintek Canada Corp. from internal and external scientific sources. Forintek is a not-for-profit technical research institute serving the Canadian forest sector.