technology transfer *fact sheet*

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Pinus contorta Dougl. Ex. Loud.
Family: Pinaceae
Lodgepole Pine

The genus *Pinus* is composed of about 100 species native to temperate and tropical regions of the world. Wood of pine can be separated microscopically into the white, red and yellow pine groups. The word *pinus* is the classical Latin name. The word *contorta* means contorted or twisted, alluding to the irregular crown of the typical, scrubby shore pine of the coast. Poles of this tree were used by Native Americans for litter, drag sleds and teepees and lodges.

Other Common Names: Beach pine, bird's-eye pine, black pine, Bolander's pine, coast pine, contorta pijn, contorta pijn, contorta pine, contorta tall, contorta-tall, cypress, drehkiefer, Henderson pine, jack pine, knotty pine, lodgepole kiefer, lodgepole pijn, lodgepole pine, Mexican contorta pine, murray kiefer, Murray pine, north-coast scrub pine, pin de murray, pin lodgepole, pino contorcido, pino contorta, prickly pine, Rocky Mountain lodgepole pine, sand pine, scrub pine, shore pine, Sierra lodgepole pine, spruce pine, tamarack, tamarack pine, twisted pine, twisted-branch pine, western jack-pine, western scrub pine, white pine.

Distribution: Lodgepole pine is native to the Pacific Coast and Rocky Mountain regions from the northern end of southeastern Alaska, central Yukon and southwestern Mackenzie District, south into Alberta, British Columbia, and from Washington to central Montana, south along the Pacific Coast to northern California, in the Sierra Nevada and the high mountains of southern California, and in the Rocky Mountains (chiefly in northeastern Utah and southern Colorado. Also locally in the Black Hills of South Dakota and southwestern Saskatchewan and in the mountains of northern Mexico.

The Tree: Lodgepole pine trees vary in growth rate, depending upon location. Trees from the Rocky mountains reach heights of 80 feet, with diameters of 1 foot. Trees from the mountains of Oregon reach heights of 75 feet, with diameters of 1 foot. Trees from the Sierra Nevada reach heights of 100 feet, with diameters of 17 inches. Trees from the coastal areas reach heights of 40 feet, with diameters of 20 inches. Dwarf trees reach heights of 20 to 40 feet.

General Wood Characteristics: The sapwood of lodgepole pine is nearly white to a pale yellow, while the heartwood is light yellow to a yellowish brown. The sapwood and heartwood are not easily separated from each other. It has a resinous odor. The wood is straight grained, has a medium to fine texture and has pronounced dimples on the split, tangential surface. It is moderately light in weight, moderately soft, moderately weak in bending and endwise compression and moderately low in shock resistance. It is easy to work with tools, easy to glue, average in paint holding ability and holds nails or screws moderately well. It shrinks appreciably, but seasons easily. It is not durable under conditions that favor decay and should be treated with a preservative. It is comparable to ponderosa pine in weight, strength, shrinkage and hardness.

Mechanical Properties (2-inch standard)

	Specific gravity	MOE $x10^6$ lbf/in^2	MOR lbf/in^2	Compression		WML[a] in-lbf/in^3	Hardness lbf	Shear lbf/in^2
				Parallel lbf/in^2	Perpendicular lbf/in^2			
Green	0.38	1.08	5500	2610	250	5.6	330	680

Dry	0.43	1.34	9400	5370	610	6.8	480	880

[a]WML = Work to maximum load.
Reference (192).

Drying and Shrinkage

	Percentage of shrinkage (green to final moisture content)		
Type of shrinkage	0% MC	6% MC	20% MC
Tangential	6.7	5.4	2.2
Radial	4.3	3.6	1.5
Volumetric	11.1	9.2	3.8

References: (56, 192, 178).

Kiln Drying Schedules[a]

Conventional temperature/moisture content-controlled schedules[a]

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	10/4 stock	12/4 stock	British schedule 4/4 stock
Lower grades	T5-C5	NA	NA	NA	NA	NA
Upper grades	T10-C4	NA	T9-C3	NA	NA	L

[a]Reference (28, 185).

Conventional temperature/time-controlled schedules[a]

	Lower grades			Upper grades			
Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	4/4, 5/4 stock	6/4 stock	8/4 stock	12/4, 16/4 stock
Standard	291	291	291	291	294	294	289

[a]References (28, 185).

High temperature[a]

Condition	4/4, 5/4 stock	6/4 stock	8/4 stock	Other products
Standard	400	400	400	Studs 412/407

[a]References (28, 184).

Working Properties: Lodgepole pine works well with tools.

Durability: It is not durable under conditions that favor decay and should be treated with a preservative.

Preservation: The heartwood is difficult to treat with preservatives, but the sapwood is permeable.

Uses: Historical Uses; railroad ties, mine timbers, lumber, house logs & rough construction. **Current Uses;** 8-foot studs, knotty pine paneling, shelving, cabinetry, interior finish, fence posts, corral rails, tramsmission or telephone poles, house logs, veneer, plywood, pulpwood and firewood.

Toxicity: In general, working with pine wood may cause dermatitis, allergic bronchial asthma or rhinitis in some individuals (4,10&17).

Additional Reading and References Cited (in parentheses)

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