

TECHNICAL NOTES

FOREST PRODUCTS LABORATORY

U. S. FOREST SERVICE

MADISON, WISCONSIN

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PRESERVATION OF TIMBER WITH ZINC CHLORIDE BY THE STEEPING PROCESS

Frequently small amounts of timber are to be used under conditions that favor decay, when it is inexpedient to have the timbers treated at a commercial treating plant, and yet where a simple and inexpensive preservative treatment is desired. Coal-tar creosote is easily applied, but this preservative may be objectionable on account of its color or odor, or the possible fire risk involved. It is in such cases that the zinc-chloride steeping process may be used to advantage.

The steeping process can not be expected to make wood as durable as impregnation under pressure, because the absorption and penetration of the preservative are usually not as thorough. Furthermore, a water-soluble preservative like zinc chloride can not be recommended for timbers which are exposed continuously or frequently to the leaching action of standing or running water.

If the timbers are to be used where there is little leaching action of water, even if they are in direct contact with damp ground, the zinc-chloride treatment may be expected to add more than enough to their length of life to justify the cost of treatment. It should be borne in mind, however, that much better results and usually greater economy can be obtained by the use of timber thoroughly treated under pressure, and commercial treating plants should be employed whenever conditions permit.

Apparatus Required

About the only special apparatus required in the steeping process is a sheet iron, wood, or concrete tank long enough so that the largest sticks to be treated can be submerged in it.

Preparation of Timber

Only absolutely sound timber should be used and it should be thoroughly seasoned before treatment. If the wood is seasoned but wet from snow or rain, it should be dried out again before treating.

The timbers should be cut to final dimensions and all boring and framing done before treatment if possible. In case it is necessary to cut into the timbers after treatment, all faces exposed by the cutting should be painted with two coats of hot coal-tar creosote, or with two coats of a strong solution of zinc chloride.

Mixing the Steeping Solution

Zinc chloride can be purchased either in solid form or in a 50 per cent water solution. For treatment by the steeping process it should be dissolved in water to form a 5 per cent solution. This can be done by mixing 5 pounds of the solid zinc chloride and 95 pounds of water, or 10 pounds of the 50 per cent solution and 90 pounds of water. The solid form absorbs water from the air rapidly and will soon dissolve itself in this way. It should, therefore, be mixed in solution as soon as the package is opened.

Method of Treatment

As the timbers are being piled into the vat, stickers should be placed between the courses, so that the preservative solution will be able to reach every part of each stick.

It is customary to allow the wood to soak 1 day for each inch of thickness and 1 additional day. Thus, a 1-inch plank should soak 2 days, one 6 inches thick 7 days, a 12-inch timber 13 days, and so on. Longer steeping, however, would probably result in better absorption and penetration of preservative, and when time is not an important factor, it would be advisable to use a longer soaking period.

Seasoning After Treatment

If the timbers are to be used in contact with the ground, in damp places, or in places where slight shrinkage would be objectionable, they should be seasoned for a week or two after treatment before being used.