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METHOD OF PRESERVING WOOD AND RESULTANT PRODUCT

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8 Claims. (Cl. 117—72)

This invention relates to an improved method of preserving wood by impregnation with creosote and to the resulting product.

One objection to creosote as a wood preservative is its tendency to bleed from the surface of wood. Bleeding not only robs wood of creosote needed for its protection against organisms, but produces a wet sticky surface. Thus the product becomes awkward to handle, as well as somewhat of a nuisance when the impregnated portion protrudes above ground, as in utility poles. Previous attempts to overcome this difficulty have not been altogether successful. It has been proposed to treat the impregnated wood with organic vapors which extract creosote from adjacent the surface, but this practice diminishes the protection. It has also been proposed to cover the surface with various sealing compounds, but I am aware of none which have adhered properly to a creosoted surface, especially above ground.

An object of the present invention is to provide an improved method of preventing creosote from bleeding from the surface of wood impregnated therewith without diminishing the protection against wood-destroying organisms.

A further object is to provide an improved method of forming a film across the openings of wood impregnated with creosote to prevent loss thereof, in which the impregnated wood is treated with a polyisocyanate.

A further object is to provide as an improved product wood impregnated with creosote and sealed with the reaction product of creosote and a polyisocyanate.

In practicing the method of my invention, the wood first is impregnated with creosote in any conventional pressure apparatus for this purpose, but preferably employing an "empty cell" process, as described in Rueping Patents Nos. 709,799 and 1,008,864. Subsequently the wood is treated with a polyisocyanate, preferably immediately after it has been impregnated with creosote and still in the pressure cylinder of the impregnating apparatus. The polyisocyanate is introduced to the cylinder under a pressure range of about 5 to 50 p. s. i. absolute, but preferably about 20 to 40 p. s. i. It remains in contact with the wood for about 5 to 60 minutes, but preferably about 10 to 30 minutes. Excess polyisocyanate then is drained from the cylinder, after which the wood is washed with water and removed from the cylinder as a finished product. Preferably the wash water is alkaline, but it may have a pH value of about 6 to 12. Nevertheless it is possible to apply the same polyisocyanate treatment later, or in a different vessel, or to wood which was impregnated with creosote at some previous time.

As the impregnated wood absorbs polyisocyanate, the latter reacts to some extent with the creosote. The reaction becomes much more rapid while the product is being washed since the water acts as a catalyst. The reaction product is a solid which expands as it forms. Thus the reaction product seals the mouths of the wood cells in the surface regions of the wood and forms a barrier which prevents loss of creosote.

The polyisocyanate presently preferred is toluene diisocyanate and specifically the 2:6 isomer. Examples of other suitable polyisocyanates are as follows:

Acenaphthene diisocyanate
Anthracene diisocyanate
Benzene diisocyanate
Carbazole diisocyanate
Diphenyl diisocyanate
Naphthalene diisocyanate

As a specific example of the practice of my invention, wood was impregnated with creosote according to the disclosure of the Rueping patents. While the wood remained in the pressure cylinder of the impregnating apparatus, 2:6 toluene diisocyanate was introduced under a pressure of 30 p. s. i. in sufficient quantity to cover the wood. The wood remained in contact with the diisocyanate for 15 minutes, after which the excess was drained off and the wood washed with an alkaline solution. The resulting product showed no tendency to be wet or sticky, yet the full creosote content remained to afford protection against wood-destroying organisms.

While I have described only a preferred way of practicing my invention and a preferred product, it is apparent modifications may arise. Therefore I do not wish to be limited by my disclosure, but only by the scope of the appended claims.

I claim:

1. A method of preserving wood comprising impregnating the wood with creosote, treating the impregnated wood with a polyisocyanate under a pressure of about 5 to 50 p. s. i. absolute and for about 5 to 60 minutes, and washing the treated wood with water.

2. A method of preserving wood comprising impregnating the wood with creosote, treating the impregnated wood with a polyisocyanate under a pressure of about 20 to 40 p. s. i. absolute and for about 10 to 30 minutes, and washing the treated wood with water.

3. A method of preserving wood comprising impregnating the wood with creosote, treating the impregnated wood with a polyisocyanate of the group consisting of: toluene diisocyanate, acenaphthene diisocyanate, anthracene diisocyanate, benzene diisocyanate, carbazole diisocyanate, diphenyl diisocyanate, and naphthalene diisocyanate, the polyisocyanate being under a pressure of about 5 to 50 p. s. i. absolute and the duration of treatment being about 5 to 60 minutes, and washing the treated wood with water.

4. A method of preserving wood comprising impregnating the wood with creosote, treating the impregnated wood with a polyisocyanate of the group consisting of: toluene diisocyanate, acenaphthene diisocyanate, anthracene diisocyanate, benzene diisocyanate, carbazole diisocyanate, diphenyl diisocyanate, and naphthalene diisocyanate the polyisocyanate being under a pressure of about 20 to 40 p. s. i. absolute and the duration of treatment being about 10 to 30 minutes, and washing the treated wood with water.

5. A method as defined in claim 4 in which the water has a pH range 6 to 12.

6. A wood product consisting of wood impregnated with creosote which is sealed therein with the reaction product of creosote and a polyisocyanate.

7. A wood product consisting of wood impregnated with creosote but with the cell openings devoid thereof, and a seal across the cell openings formed of the reaction product of creosote and a polyisocyanate.

8. A wood product as defined in claim 7 in which the polyisocyanate is of the group consisting of: toluene diisocyanate, acenaphthene diisocyanate, anthracene diisocyanate, benzene diisocyanate, carbazole diisocyanate, diphenyl diisocyanate, and naphthalene diisocyanate.

References Cited in the file of this patent

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