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### COATINGS THAT PREVENT END CHECKS

Wood dries more rapidly from the end grain than from the side grain, and is apt to check and split during seasoning unless end drying is retarded. For this reason it is advisable to use a moisture-resistant end coating on wood during air seasoning or kiln drying, especially on woods which are difficult to dry and on short kiln samples.

The coatings ordinarily used are of two classes. The first are liquid at ordinary temperatures and can be applied cold. The second are solid at ordinary temperatures and must be applied hot. Cold coatings have the advantage that they may be used as easily on logs and lumber as on kiln samples and dimension stock; hot coatings, because of the method of application (end dipping), are not easy to use on large stock.

Either the cold or hot coatings can be used effectively for drying temperatures up to 140° F. Temperatures much above this cause blistering in the cold coatings, but make the hot coatings plastic enough to form new surfaces as fast as the old ones break. For this reason the hot coatings are apt to be more effective than the cold coatings for temperatures from 140° to 170°, where they liquefy to such an extent that they run off. No coating has been found which is entirely satisfactory for temperatures above 170°. Cold coatings are perhaps somewhat better than hot coatings for temperatures above 170° and for use on kiln samples when temperatures are high enough to cause loss of part of a hot coating. Some asphalts are highly moisture-resistant, but they are hard to apply because of the high temperatures required to make them plastic. Paraffine has proved very satisfactory as an end coating for stock

during air seasoning, but cannot be used in the kiln because of its low melting-point.

Excessive shrinkage of the wood and rough handling often cause the end coatings to chip or shear off, and a fresh application of the coating must be made. To reduce end-drying sufficiently there must be a thick coating over the entire end surface. When hot dips are used, the wood should be dipped 1/2 inch into the liquid. Cold coatings should have about the consistency of heavy syrup. The amount of filler required ranges from 1/2 to 4 parts by weight to 1 of the vehicle.

The two best cold coatings developed at the Forest Products Laboratory are hardened gloss oil thickened with barytes and asbestine (very cheap), and bakelite varnish and aluminum powder. The latter coating is expensive but when 2 coats are applied it is very effective and has some advantage over the former.

The manufacture of hardened gloss oil involves technical operations and should not be attempted by the novice. Because gloss oil is made commercially in a number of ways and because some of the products are unsuited for end coatings, a gloss oil should be specified which is made in accordance with the following formula:

	8	parts	by	weight	quick	lime
100	"	"	"	"	rosin	
57.5	"	"	"	"	spirit	

To this gloss oil add 25 parts barytes and 25 parts asbestine. One or two parts of lampblack may also be added if a black coating is desired. The asbestine helps to keep the pigment in suspension. In time, however, it will settle, and the spirit will evaporate. As a result of these two actions the filled hardened gloss oil tends to become pasty if allowed to stand any considerable period. It is suggested, therefore, that the user protect his gloss oil from evaporation and mix

relatively small quantities of it with the barytes and asbestine as needed.

Cold coatings must be allowed to dry a few hours before being subjected to kiln temperatures.

The hot dips are effective in the following order:

213° coal-tar pitch ..... Cheap.  
254° coal-tar pitch ..... Cheap.  
Rosin and lampblack (100 parts of rosin  
to 7 parts of lampblack) ..... Moderate cost.