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COMPOSITION OF ASPHALT SATURANTS

Henry S. Goodwin, East Bound Brook, and Herman D. Winters, Jr., Roselle Park, N. J., assignors to Standard Oil Development Company, a corporation of Delaware

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1 Claim. (Cl. 91—70.5)

This invention relates to improvements in the manufacture of waterproofing asphalt saturants, particularly asphalt saturants that are used to waterproof asbestos-cement or similar types of building boards.

Building boards composed of asbestos fiber and Portland cement when combined under pressure into a homogeneous dense mass have high strength and great durability. Building boards of this type may be made in different forms for various purposes, that is, they may be made in flat sheets and used as side walls, both indoor and outdoor. They may be corrugated and used as roofing and sidings. There is one disadvantage in using boards of this type, that is, upon being exposed to damp or wet weather for any substantial periods of time, there is a tendency of the boards to absorb sufficient moisture to cause the board to swell or creep. Therefore, substantial openings are required at the joints of two boards to allow for this swelling to avoid buckling of the board. Another disadvantage is that when fastening the boards in place provision must be made to allow for such creeping or swelling of the board.

An object of this invention is to impregnate these boards to such a substantial depth with a waterproofing composition that substantially no moisture will be absorbed.

Another object of this invention is to impregnate these boards to such a substantial depth with a waterproofing composition that substantially no moisture will be absorbed even though new edges of the board are exposed when cutting or breaking the board into smaller pieces.

According to the present invention, it has been found that improved saturation of the boards with bitumen may be achieved at room temperatures and normal pressures by the application of asphalt in cutback form. The percentage of asphalt in the cutback determines the penetration of the saturant in the building boards composed of asbestos fiber and Portland cement, that is, when a saturant containing in the neighborhood of 35 to 40% of asphalt dissolved in a solvent naphtha having a gravity varying from 28° to 48° A. P. I., a kauri butanol solvent power varying from 53 to 82 and boiling points between 168° F. and 450° F. is used according to this invention, an optimum penetration is obtained. The following table is used to illustrate the depth to which the saturant penetrates in asbestos-cement boards:

Effect of composition of saturant on its penetrating ability toward asbestos-cement boards

Composition of saturant				Physical inspection of saturant			Penetration of board mm. depth		
Per cent asphalt	Asphalt used (melting pt.)	Per cent solvent	Solvent used (boiling range 237°–432° F.	Gravity °A. P. I.	Flash	Saybolt universal viscosity at 140 °F. secs.	After 2 hrs.	After 4 hrs.	After 6 hrs.
	°F.				°F.				
20	140	80	Naphtha	26.0	90	82	2	2½	2½
40	140	60	do	17.4	90	86	3½	4	4
60	140	40	do	9.3	90	129	1½	2	2½
20	185	80	do	30.1	150+	89	2½	2½	3
35	185	65	do	22.9	150+	102	3	3	4
65	185	35	do	8.5	150+	869	¼	¼	¼
20	185	80	do	26.1	90	83	3	3	3
35	185	65	do	19.4	90	87	3½	3½	4
40	185	60	do	16.9	90	92	2½	4	4
60	185	40	do	9.3	90	183	2	3½	3½
65	185	35	do	7.5	105	203	1	1½	1½

According to this table, cutbacks containing smaller or greater proportions of the asphalts of various melting points do not penetrate to the same degree, that is, the greatest penetration has been obtained when a cutback asphalt contains approximately 35 to 40% of the desired asphalt that is used in the preparation of the cutback. It is desirable to use solvents having final boiling points not over 400° or 450° F. Other solvents may be used, for example, hydrocarbon liquids having a boiling point below 400° F., halogenated hydrocarbons having boiling points below 400° F., carbon disulfide, carbon tetrachloride,

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chloroform, methylene chloride and the lower boiling mono-chlor aliphatic hydrocarbons, together with pyridine, nitro-benzol, benzol aniline and mono-chlorbenzol.

Cutback asphalts having Saybolt universal viscosities varying from 85 to 105 seconds are preferred. Solvents having boiling points below 425° F. are likewise preferred.

We claim:

An improvement in the manufacture of an asbestos cement building board which comprises impregnating an asbestos cement board with a liquid saturant having a Saybolt universal viscosity varying from 85 to 105 seconds at 140° F., an A. P. I. gravity of 16.9° to 22.9° and consisting of 35 to 40% of an asphalt having a melting point of 140 to 185° F. and 65 to 60% of a solvent naphtha having an A. P. I. gravity of 28 to 48° and a kauri butanol solvent power of at least 53.

HENRY S. GOODWIN.
HERMAN D. WINTERS, JR.

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