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ASPHALT TO DUPLICATE RAPID SETTING COAL TARS

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4 Claims. (Cl. 196—152)

This invention relates to a relatively rapidly setting liquid asphalt.

It has been customary in producing asphalt to dissolve in natural petroleum distillate the solid asphalt obtained from reduced or oxidized crude petroleum residues. This procedure has resulted in the use of a relatively high amount of solvent.

With a preferred embodiment in mind, but without intention to limit the invention more than is required by the prior art, the invention comprises preparation of a rapid setting liquid asphalt by means of a solution of asphalt derived from the cracking of petroleum oil in a distillate derived from the cracking of petroleum oil. Solid or semi-solid asphalts derived from cracking coal tar or the like dissolve in distillate from the same or similar cracking operations.

When petroleum oil is subjected to cracking conditions of temperature and pressure asphaltic residue is formed. For example, petroleum oil can be heated to suitable elevated temperatures under a pressure of 50 pounds per square inch or higher in a cracking coil and then digested under the elevated pressures for a suitable length of time to secure optimum cracking of the petroleum oil. The asphaltic material formed together with cracked oil can be removed from the digestion zone, passed to a tar separating zone, separated from the cracked oil and utilized in the present invention. Preferably the asphaltic material is reduced by distillation until it has a penetration of 80/100 (N. Y. penetrometer) at 77° F.

The solvent used is a distillate derived from the cracking of petroleum oil. The distillate may be the heavy naphtha part of the cracked distillate, the cycle stock (gas oil), or the like. High boiling point distillates, such as cycle stocks, are preferably used.

As an example of one way of carrying out the invention, solid or semi-solid asphalt derived from the cracking of gas oil under a pressure of approximately 350 pounds per square inch at an outlet temperature of approximately 850° F. is reduced by distillation to a 80/100 penetration (N. Y. penetrometer) at 77° F. The reduced asphalt is dissolved in a distillate obtained by the cracking of petroleum in the same or a similar operation in the proportions of appriximately 78 parts by volume of asphalt and 22 parts by volume of the distillate to obtain a liquid asphalt of 200 viscosity Furol at 122° F.

As a further example, asphalt resulting from cracking of petroleum oil under 750 pounds per square inch at an outlet temperature of 925° F. was reduced by distillation to an 80/100 penetration (N. Y. penetrometer) at 77° F. In order to obtain a liquid asphalt of 200 viscosity Furol at 122° F., the asphalt was dissolved in cracked petroleum distillates in the proportions of approximately 81 parts by volume of asphalt and 19 parts by volume of distillate.

As a still further example of the invention, gas oil when subjected to a pressure of approximately 750 pounds per square inch at an outlet temperature of 925° F. leaves an asphaltic residue which is reduced by distillation to 80/100 penetration asphalt (N. Y. penetrometer) at 77° F. The reduced asphalt is dissolved in a cracked distillate to a final liquid asphalt of 200 viscosity Furol at 122° F. Approximately 83 parts by volume of asphalt to 17 parts by volume of distillate were used in order to secure this viscosity.

By the procedure described a liquid asphalt for a given viscosity at working temperatures has a high amount of asphalt base and a small amount of solvent. With a given end boiling point of the solvent the liquid asphalt will set in a minimum of time. If desired, a relatively high boiling point cracked distillate can be used as the solvent since the asphalt is readily soluble therein in order to obtain the necessary speed of setting of the liquid asphalt. The liquid asphalt has high wetting qualities. It is adapted for such uses as priming, surface treating, and cold laid bituminous mixtures.

Various changes may be made within the scope of the appended claims in which it is desired to claim all novelty inherent in the invention as broadly as the prior art permits.

I claim:

1. A rapid setting liquid asphalt of approximately 200 viscosity Furol at 122° F., comprising a solution of at least 70 parts of asphalt of 80/100 penetration (N. Y. penetrometer) at 77° F., derived from the cracking of petroleum oil under at least 350 pounds per square inch pressure, and distillate obtained from the cracking of petroleum oil.

2. A rapid setting asphalt according to claim 1 in which 78 parts by volume of the asphalt are dissolved in 22 parts by volume of the distillate.

3. A rapid setting asphalt according to claim 1 in which 81 parts by volume of the asphalt are dissolved in 19 parts by volume of the distillate.

4. A rapid setting asphalt according to claim 1 in which 83 parts by volume of the asphalt are dissolved in 17 parts by volume of the distillate.

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