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PROCESS FOR THE MANUFACTURE OF ASPHALT

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It is known that crude asphaltic oil, after any gasolene, kerosene and gasoil contained therein have been removed by distillation, yields on further distillation a residue which, depending on the extent to which the distillation is carried out, represents a more or less hard asphalt.

For practical purposes, asphalt should comply with various requirements which differ according to the purpose for which it is used. From a definite crude oil, only one and the same quality of asphalt may be obtained by distillation, which can only be modified slightly by altering the conditions under which the distillation takes place.

Also, with the aid of oxidizing treatments (the well-known blowing of asphalt), it is only possible to alter the quality of the asphalt gradually.

I have found, however, that the quality of the final product to be obtained from an oil may be highly improved by adding thereto, at any stage of the distillation (if desired, even to the starting material, i. e., the crude oil), a hydrocarbon oil containing at least 20% of hydrocarbons which can be easily sulphonated and have a relatively high boiling point (above 250° C.). The added material is prepared by treating a hydrocarbon oil according to the normal method of Edeleanu with liquid sulphur dioxide. By this treatment the higher unsaturated constituents—mostly, though not quite correctly called "aromatics"—are removed. These removed higher unsaturated constituents are sulphonifiable hydrocarbons soluble in liquid sulphur dioxide.

If, according to my invention, an oil to which the said material is added is subjected to a distillation with steam, at a temperature preferably above 340° C., a final product is obtained which, in comparison with the product obtained from the same oil and under the same circumstances but without the addition of a material containing at least 20% of hydrocarbons which are sulfonifiable but insoluble in liquid SO_2, is very resistant against changes in temperature. Thus, if an oil yields normally, by distillation, a final product of insufficient resistance against changes in temperature, I may add to such oil, according to my invention, the said material and then subject the mixture to a distillation with steam, preferably above 340° C.

From the following table, relating to such distillation of a mixture of Venezuelan residue and the said material, in comparison with a distillation of that residue without admixture, those skilled in the art will be able to ascertain the technical effect obtained according to my invention.

Steam asphalt

	Without addition	With the addition of 30% sulfonifiable but liquid SO_2 insoluble hydrocarbons
Melting point (R and B) A.S.T.M. D. 36-26—	60° C.	60° C.
Penetration: A.S.T.M. D. 5-25—		
At 0° C	4	12
At 15° C	15	38
At 25° C	35	76
Ductility: A.S.T.M. D. 113-26 T—		
At 0° C	0	0
At 15° C	23	7.5
At 25° C	>100	10.5

The invention, as herein described and claimed, is a continuation in part of that disclosed in my prior application No. 340,006, filed February 14, 1929.

What I claim is:

1. A process of manufacturing asphalt from crude asphaltic oil or asphaltic residuum, comprising the steps of extracting a hydrocarbon oil having an initial boiling point of at least 250° C. with liquid sulphur dioxide, then adding to the asphaltic oil or residuum that portion of the hydrocarbon oil subjected to the extraction treatment which is insoluble in the liquid sulphur dioxide, and blowing the mixture to form an oxidized asphalt.

2. A process of manufacturing asphalt from crude asphaltic oil or asphaltic residuum, comprising the steps of extracting a hydrocarbon oil having an initial boiling point

of at least 250° C. with liquid sulphur dioxide, then adding to the asphaltic oil or residuum that portion of the hydrocarbon oil subjected to the extraction treatment which is insoluble in the liquid sulphur dioxide, and subjecting the mixture to steam distillation at a temperature above 340° C. to produce an asphalt resistant to temperature changes.

In testimony whereof I affix my signature.

ALBERT LOEBEL.