

UNITED STATES PATENT OFFICE

2,069,927

COMPOSITIONS OF MATTER

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No Drawing. Application November 21, 1934,
Serial No. 754,174

22 Claims. (Cl. 196—152)

This invention relates to a composition of matter and particularly to a new type of fluxed or cut-back tar product which involves the use of certain petroleum distillates and specially treated petroleum products and distillates as the fluxing agents.

It has long been the practice to flux coal tars and other tars with lower boiling oils of similar chemical nature so that the tars can be applied at atmospheric or slightly elevated temperature in certain types of road construction or treatments. The use of fluxed tar greatly facilitates the application and spreading of the tar, especially where there is no source of heat available at the site of construction or application. After application of the fluxed tar the flux is intended to evaporate rapidly leaving the original tar to act as a binding material or as a protective coating. Sometimes the usual types of tar distillate oils available for fluxing actually do not evaporate at sufficiently rapid rates and at times the use of more rapid evaporating fluxes is advantageous. Lower boiling aromatic oils, such as benzene, toluene, the xylenes or solvent naphtha are not used generally because of their high cost. The usual type of tar flux is often limited in quantity. The use of a petroleum distillate or other product having similar advantages as to cost, availability and evaporation rate would be advantageous at times.

It is well known that the usual straight run petroleum distillate predominates in paraffinic compounds. We have found that because of this, such distillates are not suitable for fluxing tar, the addition of such a distillate to tar either causes sludging of the tar or else the mixture formed is not stable. However, at the instance of the automotive industry, the petroleum industry has been constantly seeking and commercializing special treatments of petroleum so that improvements over the usual straight run distillates could be obtained and also, that higher boiling distillates, for which there is less demand, could be transformed into products which are more widely usable. As a result of this development work there are available practically everywhere different types of specially treated petroleum products which are quite different, in some respects, from the usual straight run petroleum distillates. We have found that in many cases the specially treated petroleum products have characteristics so different from those of the usual straight run petroleum distillates that it is possible to use them as fluxes for tar.

From the present point of view the various

cracking processes are the most prominent of all the treatments being used by the petroleum industry. While these cracking processes are used in the preparation of many special products our present interest is in the lower boiling oils. As a general rule the effect of these cracking processes is to produce an oil or distillate which contains a higher amount of aromatic and unsaturated hydrocarbons and a smaller amount of paraffinic hydrocarbons than would be obtained by straight distillation from the same crude oil. That this statement is general and does not depend upon the type of oil being cracked is shown by figures taken from the Journal of Industrial and Engineering Chemistry, vol. 26, page 42 (1934).

Table

Chemical analysis of gasolines

	Naph- thenes	Aro- matics	Unsat- urates	Paraffins	
Arkansas (Smackover):	Percent	Percent	Percent	Percent	
Straight run	14.5	11.3	7.9	66.3	
Cracked	21.2	27.5	14.7	36.3	
California:					
Straight run	34.9	2.8	5.1	57.2	
Cracked	16.7	22.0	23.0	38.3	
Kansas:					
Straight run	20.3	0.4	2.7	76.6	
Cracked	12.8	17.8	16.1	53.3	
Kentucky (Somerset):					
Straight run	20.6	5.3	3.8	70.3	
Cracked	11.8	14.9	12.5	60.8	
Kentucky:					
Straight run	23.1	2.8	5.8	68.3	
Cracked	18.8	26.0	12.5	42.7	
Michigan (Mt. Pleasant):					
Straight run	7.4	4.5	2.9	85.2	
Cracked	3.1	33.5	25.9	37.5	
Oklahoma (Cushing):					
Straight run	23.7	4.9	1.6	69.8	
Cracked	18.0	19.8	10.9	51.3	
Pennsylvania:					
Straight run	13.0	6.9	2.2	77.9	
Cracked	10.2	23.5	9.7	56.6	
Texas (Van Zandt):					
Straight run	0.0	2.9	1.7	95.4	
Cracked	0.0	35.2	22.2	42.6	

The figures shown here refer of course, to gasolines produced from crude petroleum. By the cracking of higher boiling petroleum distillates also, considerable quantities of lower boiling distillates are being produced which contain percentages of aromatic compounds of the order shown in the above table. There are many cracking processes and variations of processes being used by the petroleum industry at the present time and the chemical and physical nature of the products will vary depending upon the particular process being used. However, it has been found that the lower boiling distillates derived from most of the cracking processes which find

wide use at the present time do contain smaller amounts of paraffinic hydrocarbons than do straight-run distillates and increased amounts of unsaturated and aromatic hydrocarbons. This change in the relative amounts of the different types of compounds which make up cracked petroleum distillates in comparison with those of a straight run product has resulted in a hitherto undisclosed fact and that is, with certain limitations, many of these cracked petroleum distillates can be used as fluxes for tars.

As has been indicated above, the major factor involved in this change of characteristics of cracked petroleum products in comparison to the straight run products is the increased amount of aromatic hydrocarbons contained in the former. The increase in unsaturate content which takes place at the same time is of lesser importance than the increase in aromatics so far as the present invention is concerned. The change in the naphthenic content as the result of cracking is variable. According to the figures given in the table the naphthenic content usually may be expected to show a decrease as the result of cracking although in one case an increase is recorded. A petroleum distillate or product containing a high percentage of naphthenes should be an improvement over a distillate containing a high percentage of paraffins. However, as long as the distillate contains a fair percentage of aromatic compounds and not an extreme percentage of paraffinic compounds it can be used as a flux for tars. Judging from the composition of the straight run Arkansas (Smackover) gasoline even this material could be used in many cases as a tar flux.

Aside from those specially treated and straight run petroleum distillates there are other types of petroleum products which are usable as tar fluxes. Most prominent among these other special products are those produced by hydrogenation of petroleum and petroleum distillates. The chief hydrogenation reaction in such cases takes place with unsaturated and naphthenic compounds. These hydrogenations are carried out by various methods and conditions which, of course, will have their effect on the product. However, any product which contains a considerable percentage of aromatic, hydrogenated aromatic or hydrogenated naphthenic compounds can be used as a tar flux with certain limitations.

In many cases it will be found possible to use a blended product which contains a cracked or hydrogenated petroleum distillate or product and a straight run petroleum distillate. The type and makeup of blends that can be used for fluxing tars are dependent upon the individual products in the blend. For instance, judging from the figures in the table, a blend of a cracked distillate could contain a higher percentage of straight run Arkansas (Smackover) gasoline than a blend of the same cracked distillate with the Pennsylvania straight run gasoline and still give results of the same order.

The boiling range of the special petroleum distillate or distillate derived from special treating processes as referred to above to be used as the tar flux, is, of course, dependent upon the rate of evaporation desired. While hydrocarbons of the same boiling range but of different molecular configuration do not necessarily evaporate at exactly the same rates at atmospheric temperatures, for the purpose of illustration, comparative figures for the usual commercial types of distillates will be given. A fluxed tar having

very quick setting properties can be obtained by using petroleum products or distillates in the range known to industry and commerce as gasoline. Ordinarily this material would have an initial boiling point of substantially 70° F. to substantially 140° F. and an end point of substantially 340° F. to substantially 450° F. In cases where there may be a fire hazard involved in the manufacture or use of the fluxed tar a product or distillate similar to a topped gasoline known to the industry as naphtha may be used. Ordinarily, this material would have an initial boiling point of substantially 140° F. to substantially 240° F. and an end point in a range similar to that of the usual gasoline.

In cases where a less rapid rate of setup is desired a product or distillate corresponding to kerosene may be used. A kerosene fraction ordinarily distills from substantially 302° F. to substantially 572° F. In ordinary commercial practice a kerosene fraction may overlap a gasoline fraction, and vice versa. Products or distillates similar to combined gasoline and kerosene fractions will give satisfactory results and in fact, products or distillates corresponding in boiling range to any one of the lighter, straight run petroleum distillates may be used as conditions demand. Products or distillates in the boiling range of the so-called "safety solvent" can be used advantageously.

Various tars and types of tars, crude or refined, may be fluxed by means of the special fluxes set forth above. This invention may be used to advantage with both high temperature coke oven tar and low temperature tar. Other coal tars that may be used include blast furnace tar, horizontal retort tar, and vertical retort tars. Other types of tars such as water gas tars and oil gas tars including residual tars, residuum tar, Bunker "C" tar and Pintsch gas tar or mixtures of any of these tars and other tars may be used. Water gas tars, oil gas tars or mixtures of both will hereinafter be designated as oil tars. By residuum tars or residual tars we mean the condensates resulting from pyrogenous treatment of residual oils, for example cracker residues in gas manufacturing processes. Each of these tars or combinations of tars on addition of the types of petroleum distillates which predominate in paraffinic hydrocarbons and contain but small percentages of aromatic compounds will either exhibit sludging tendencies or else will not form stable and homogeneous solutions or mixtures. But by the use of the special petroleum distillates and products as outlined above a good fluxed tar can be obtained. At various times it is the practice to add varying percentages of asphalt to these tars or combinations of these tars and the special flux described herein can be used to advantage with these tar-asphalt mixtures. In fact, the addition of asphalt to the tar may, at times increase the range of usable special petroleum distillates and products.

A number of procedures have been developed to change some of the characteristics of tar in order to meet certain economic exigencies and construction problems. It is the custom, at times, to add certain materials designated in the industry as "fillers", such as powdered coal, lampblack, limestone dust or similar materials, to the tar thereby modifying its characteristics to some extent by increasing the solids content. Other procedures involve the partial oxidation of tar by air-blowing at various temperatures or by

treatment with oxidizing chemicals at various temperatures in order to obtain a bituminous material having certain special characteristics. Such oxidations involve not only the oxidation of the tar itself but also the partial oxidation of a tar oil by such means as just described, the partially oxidized oil then being combined with a tar pitch to produce a bituminous material. Special tars are prepared by adding tar oils of certain boiling ranges such as creosote oils or its fractions to the tar, either crude or refined, so as to bring about changes in the characteristics of the tars. Other special tars are prepared by distilling the tar to a pitch and then dissolving the pitch in tar oils having certain boiling ranges such as creosote oils or its fractions. The tar oils mentioned in the last three cases are not to be considered as fluxes because ordinarily their boiling ranges are above those of fluxing oils. In other cases, tars of higher consistency are sometimes obtained by adding pitch to the tar, either crude or refined. At times the tar residuals obtained from the hydrogenation of tar or its derivatives or products of similar chemical nature may be used for construction purposes. Whenever any of these various modifications of tar or modified forms of tar are intended to be fluxed the use of the special flux as outlined may be used to advantage within the limitations described herein. The modified forms of tars just described are herein-after designated as modified tars.

The consistency of the bituminous base made up from any of the above mentioned tars or tar-asphalt combinations intended for use in manufacturing fluxed materials varies considerably with the purpose for which the fluxed material is used. In the case of a road primer a very light tar or a more viscous tar may be used, enough flux being added to obtain the desired viscosity. For the surface treating of roads and other uses the base is of a higher consistency, the consistency varying between a float test of substantially 50 seconds and substantially 400 seconds at 32° C., depending upon the special problem at hand and enough flux is added to these bases to reach certain specified viscosity limits. Other types of construction and uses demand bituminous bases of even higher consistencies ranging from those described for surface treating up to and including the softer pitches. As pitches there may be included either hard pitches or soft pitches. The new type of flux described herein can be used to advantage in any of these cases.

The foregoing discussion of the chemical and physical characteristics of the various materials and types of materials covered by this invention has not been more specific because of the many variables involved. First, there is the type of tar being fluxed. Some tars, such as oil tars may be fluxed successfully with a petroleum distillate or product containing a fairly low percentage of aromatic compounds or compounds having similar solvency characteristics and which would not be usable with a horizontal retort tar. Second, the consistency of the tar base has an effect; this is so because the lower boiling aromatic compounds in the tar base itself have an effect on the stability and homogeneity of the fluxed tar. For instance, the petroleum distillate or products used as a flux for a light tar base can contain a smaller percentage of aromatic compounds or compounds

having similar solvent characteristics than the petroleum distillate or product used as a flux for a heavy tar base and still give as good results because the base in the former case will contain a higher percentage of lower boiling aromatic compounds than the latter base. Third, the amount of petroleum distillate or product that must be added to attain the desired consistency is of importance. This follows from the same explanation given for the second variable. In cases where a light tar base is used and only five or ten percent of petroleum distillate or product need to be added, the content of the flux in aromatics or compounds of similar solvent characteristics can be at times within the range of those found in some ordinary straight run petroleum distillates. Fluxed tars containing a heavier base and a larger amount of flux will require a flux which contains a higher percentage of aromatics or compounds of similar solvent characteristics. Fourth, the consistency of the fluxed tar enters into the question. The explanation follows the same line of reasoning as above. A viscous fluxed tar containing a moderate amount of flux can be prepared successfully by using a petroleum distillate or product containing aromatics or compounds of similar solvent characteristics within the range of those found at times in some ordinary straight run petroleum distillates and which would not give a stable mixture if the fluxed tar were less viscous. All of these factors must be considered when a fluxed tar of this new type is being prepared.

The following examples illustrate the present invention and some of the variations that are possible.

Example I.—The flux used in this case was a petroleum product produced by so-called pressure still cracking. Its approximate analysis showed—olefins 20.0%; naphthenes 8.9%; aromatics 23.0%; paraffins 48.1%. This product had been topped so that its initial boiling point was substantially 218° F. Products containing this flux were thus able to meet certain flash point specifications. The tar used was a coke oven tar having a float test of 167 seconds at 32° C. The fluxed tar contained 16 parts of flux and 84 parts of tar. This fluxed tar was liquid at atmospheric temperature and was still stable and homogeneous after months of storage.

Example II.—The flux used in this case was a low-boiling distillate obtained from the cracking of a Mid-Continent crude, its initial boiling point being substantially 218° F. and its end point 405° F. The tar used was a heavy distilled coke-oven tar having a consistency by float test at 50° C. of approximately 200 seconds. Sixteen parts of flux and 84 parts of tar were used and a product, liquid at atmospheric temperature, was obtained. This product was still stable and homogeneous after months of storage.

Example III.—The flux used in this case was an ordinary commercial gasoline normally containing aromatic hydrocarbons and aliphatic hydrocarbons. Ten parts of the gasoline were mixed with 90 parts of coke oven tar. The tar used was a refined coke oven tar having a consistency by float test at 32° C. of about 180 seconds. The resulting mixture was viscous, but flowed readily at room temperature. The mixture did not change or become non-homogeneous at the end of months of storage.

Example IV.—The flux used in this case was an ordinary commercial gasoline normally con-

taining aromatic hydrocarbons and aliphatic hydrocarbons. Ten parts of the gasoline were mixed with 90 parts of a refined residuum tar, for example an oil tar. The resulting mixture was viscous but flowed readily at room temperature and did not become non-homogeneous on long storage.

For purposes of illustration, proportions are expressed in terms of weight.

10 Industrial applications for this invention are both numerous and varied in nature. The invention will find advantageous application in all types of fluxed tars used in road construction. It will be economical in many cases to use this new flux for road primers and by using distillates or products of different distilling ranges the results can be varied to suit the needs. Fluxed tars used for surface treatment and mixed-in-place construction, will give improved results when prepared with the proper type of this new flux. Cold patch tars which consist of a heavy tar and a light flux, and other fluxed heavy tars, will prove to give improved results when prepared with this new type of flux. The invention can be extended to the manufacture of tar base paints although in this case even the special distillates and products described may have to be fortified by blending with a strictly aromatic oil. It should be noted that this new flux is actually a universal flux for bituminous materials and as such will eliminate the necessity of keeping stocks of different types of fluxes where different types of fluxed bitumens are manufactured and used. Its universal fluxing properties lead to applications in other fields than those mentioned above. This flux can be used in primers for pipes to be used underground and for other uses.

40 In view of the above it can be seen that it is entirely feasible to use special petroleum distillates, distillates from special treatments of petroleum and petroleum products and in some cases even ordinary petroleum distillates for the fluxing of tars and that many advantages arise from the use of these distillates.

The tars or pyrogenous distillates referred to in the description of the present invention may be defined as black to dark-brown bituminous condensates which yield substantial quantities of pitch when partially evaporated or fractionally distilled. The pitches referred to are black or dark-brown solid cementitious residues which gradually liquefy when heated and which are produced by the partial evaporation or fractional distillation of the above tars.

We claim:

1. A composition of matter comprising a fluxed, homogeneous, stable tar product containing pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature coal tar, blast furnace tar, water gas tar, and oil gas tar; and a low-boiling cracked petroleum product in sufficient amount to cut back the tar, the said fluxed tar product being substantially free from a precipitate that forms when aliphatic hydrocarbons alone are added to pyrogenous distillate tar.

2. A composition of matter comprising a fluxed, pyrogenous distillate tar product containing pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and containing as a fluxing material a low-boiling petroleum product normally containing a relatively high

proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, the said low-boiling petroleum product alone effecting the stabilization of the said fluxed tar product.

3. A composition of matter comprising a fluxed, homogeneous, stable tar product containing pyrogenous distillate tar or tars cut back with a gasoline normally containing a relatively high proportion of aromatic compounds, the said tar or tars being selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and the said gasoline alone effecting the stabilization of the said fluxed tar product.

4. A composition of matter comprising a stable, homogeneous mix containing a low-boiling cracked petroleum product, a low-boiling straight run petroleum distillate and pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar.

5. A composition of matter comprising a fluxed tar product containing coke oven tar and a relatively low-boiling pressure still cracked petroleum oil that reduces the viscosity of the tar and forms a substantially permanently stable fluxed tar product, the said petroleum oil alone effecting the stabilization of the said fluxed tar product.

6. A composition of matter comprising a fluxed tar product containing heavy distilled pyrogenous distillate tar or tars and a low-boiling distillate from cracked petroleum, the said tar or tars being selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and the said fluxed tar product being substantially permanently stable.

7. A composition of matter comprising a fluxed tar product containing coke oven tar and gasoline normally containing aromatic hydrocarbons, the said fluxed tar product being substantially permanently stable, and the said gasoline alone effecting the stabilization of the said fluxed tar product.

8. A composition of matter comprising a fluxed pyrogenous distillate tar product containing water gas tar and gasoline normally containing aromatic hydrocarbons, the said fluxed pyrogenous distillate tar product being readily flowable at room temperature and being substantially permanently homogeneous, and the said gasoline alone effecting the stabilization of the said fluxed tar product.

9. A composition of matter comprising a fluxed bituminous product containing constituents of pitch of pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and a low-boiling cracked petroleum product in sufficient amount to cut back the bituminous product, the said fluxed bituminous product being substantially free from sludge that forms when aliphatic hydrocarbons alone are added to such constituents of pitch of a pyrogenous distillate tar.

10. A composition of matter comprising a fluxed pyrogenous distillate tar product containing a pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and containing as a fluxing material kerosene normally containing a relatively high proportion of aromatic hydrocar-

bons and a preponderant proportion of aliphatic hydrocarbons, the said kerosene alone effecting the stabilization of the said fluxed tar product.

11. A composition of matter comprising a fluxed pyrogenous distillate tar product substantially free from sludge and containing pyrogenous distillate tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar blast furnace tar, water gas tar, and oil gas tar; and as a fluxing material petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

12. A composition of matter comprising a fluxed bituminous product containing a modified pyrogenous distillate tar or tars, the said tar or tars being selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and as a fluxing material a petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

13. A composition of matter comprising a stable, homogeneous fluxed pyrogenous distillate tar product containing coke oven tar and petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

14. A composition of matter comprising a stable, homogeneous fluxed pyrogenous distillate tar product containing gas-works retort tar and petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

15. A composition of matter comprising a stable, homogeneous fluxed pyrogenous distillate tar product containing water gas tar and petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

16. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing as a flux material petroleum oil having a boiling-point range within the boiling-point ranges of gasoline, petroleum naphtha, kerosene, and "safety solvent", the said petroleum oil normally having a relatively high content of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons.

17. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven

tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing as a flux material petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of cyclic hydrocarbons boiling within the gasoline boiling point range and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

18. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing as a flux material petroleum distillate oil of substantially lower consistency than the tar, the said oil normally containing a relatively high proportion of naphthenes boiling within the gasoline boiling point range and a preponderant proportion of aliphatic hydrocarbons, and the said oil alone effecting the stabilization of the said fluxed tar product.

19. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing as a flux material a low-boiling petroleum oil normally containing a relatively high proportion of hydrogenated aromatic compounds boiling within the gasoline boiling point range and a preponderant proportion of aliphatic hydrocarbons, the said oil alone effecting the stabilization of the said fluxed tar product.

20. A composition of matter comprising a fluxed, homogeneous, stable tar product containing pyrogenous distillate tar or tars cut back with petroleum naphtha normally containing a relatively high proportion of aromatic compounds, the said tar or tars being selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar; and the petroleum naphtha alone effecting the stabilization of the said fluxed tar product.

21. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing as flux material a mixture of a relatively low-boiling petroleum oil normally containing a relatively high proportion of hydrogenated aromatic compounds boiling within the gasoline boiling point range, and a relatively low-boiling straight run petroleum distillate, the said flux material including a preponderant proportion of aliphatic hydrocarbons.

22. A composition of matter comprising a fluxed pyrogenous distillate tar product containing tar or tars selected from a group consisting of coke oven tar, gas-works retort tar, low temperature tar, blast furnace tar, water gas tar, and oil gas tar, and containing asphalt, and petroleum distillate oil of substantially lower consistency than the tar and the asphalt, the said oil normally containing a relatively high proportion of aromatic hydrocarbons and a preponderant proportion of aliphatic hydrocarbons.

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