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IMPREGNATED FIBROUS MATERIALS

Wilbert B. McCluer, Ralph W. Hufferd, and Frank J. Philippbar, Bradford, Pa., assignors to Kendall Refining Company, Bradford, Pa., a corporation of Pennsylvania

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This invention relates to improvements in impregnated fibrous materials.

Impregnated fibrous materials have found wide uses in industry in the fields of roofing, floor coverings, heat insulation and sound deadening, electrical insulation, wall board, and the like.

It is the purpose and object of the present invention to provide improved impregnated fibrous materials which may, in accordance with their specific mode of composition, be advantageously applied in these various uses.

By the term "fibrous material" as used herein, it is intended to embrace felted fabrics, rag-felt, roofing rags, paper and paper fibers, wood pulp, jute and manila fibers, wool fibers, organic fibers generally, inorganic fibers such as asbestos, slag wood, mineral wool, glass wool and the like, as well as woolen fabrics and combinations of any of such materials.

The source materials for the impregnating agents of the present invention are paraffin base petroleum products which have undergone no thermal decomposition or chemical change other than occasioned by normal or vacuum distillation and derived from a crude oil containing not substantially in excess of 0.2% asphaltic-like constituents (Holde method).

The impregnating agents comprise the high molecular weight naturally contained viscous materials that are precipitated from a warm solution (above 77° F.) of such paraffin base oil products in a hydrocarbon solvent which is gaseous at normal temperatures and which contains from two to four carbon atoms per molecule with a solvent-to-oil ratio in the solution of above about 6 to 1 as well as chemical condensation products thereof. Blends of these materials with compatible impregnating agents are also contemplated for use in accordance with this invention.

In a more specific aspect of the invention, the impregnating agents comprise the high molecular weight naturally contained viscous materials precipitated from a warm propane solution of a residual stock that has been separated from a paraffin base oil fraction, as well as the chemical condensation products of such precipitated natural materials.

Before discussing the novel impregnated fibrous materials contemplated by this invention, it is desired to briefly review the operations that result in the obtaining of the impregnating agents used to produce these materials.

While reference will be made more particularly to the use of propane in obtaining the impregnating agents of the present invention, it is to be understood that other hydrocarbon precipitants, e. g., normally gaseous hydrocarbons of from two to four carbon atoms may likewise be used, and that propane is referred to as the preferred embodiment of the invention.

An exemplification of a preferred procedure for obtaining illustrative impregnating agents for use in accordance with the invention, is as follows:

A so-called "cylinder stock" or similar normal or vacuum distillation residual stock from a paraffin base crude, is charged to a propane dewaxing operation. The specific character of the charge will depend somewhat on the viscosity and pour point of the ultimately desired oil product of the propane treatment. For example, if it is the purpose of the propane treatment to obtain a so-called "bright stock" having a S. S. U. viscosity of 150 at 210° F. a cylinder stock charging material will have approximately the following specifications:

Viscosity	175 S. S. U. at 210° F.
Optical density (color)	2800
A. P. I. gravity	25.6
Conradson carbon residue	2.6%
Flash (Cleveland open cup)	565° F.

Where a bright stock having a viscosity at 210° F. of 120 S. S. U. and a zero pour point is the desired oil product of the propane treatment, the cylinder stock charge will have approximately the following specifications:

Viscosity	165 S. S. U. at 210° F.
Optical density (color)	2700
A. P. I. gravity	25.8
Conradson carbon residue	2.25%
Flash (Cleveland open cup)	560° F.

Such a cylinder stock charging material is preferably subjected to propane treatment in the following manner:

The charging stock is mixed with propane and fed into a warm solution tank at a temperature of approximately 65° F. The cylinder stock propane solution is then transferred into a chiller and the pressure reduced until a temperature of the order of −20 to −54° F. is obtained depending upon the desired pour point of the ultimate oil product. The chilling is effected by evaporation of propane in the well recognized manner and make up propane is added during the chilling operation so that a ratio of propane to oil of approximately three to one prevails at the end of the chilling cycle and at the time of filtration.

When the cylinder stock-propane solution has

been sufficiently chilled it is tranferred to a filter feed tank and thence to an appropriate filter to secure separation of the wax from the chilled solution.

The propane oil solution which has been freed from undissolved wax in the filter is then subjected to a precipitating treatment in which propane is added until the propane oil ratio is raised to approximately eight to one and the temperature of this solution is elevated to a temperature above 77° F. and preferably to a temperature of approximately the order of 155° to 165° F., which results in the precipitation of high molecular weight naturally contained viscous materials.

While in the above exemplification, the solvent dewaxing is described as occurring in advance of the precipitation from the warm hydrocarbon solution, it is desired to point out that the precipitation step may be effected in advance of dewaxing without materially modifying the character of the precipitate. In fact, in some instances, the initial precipitation from the warm solvent solution may be preferred particularly where wax separation is effected by centrifuging.

The precipitated material, separated from the warm propane solution, either before or after dewaxing of the cylinder stock, may advantageously be subjected to further treatment to separate the same into relatively higher and lower viscosity materials.

Specifically, when employing a warm propane solution of the paraffin base oil product having a temperature of the order of 160° F., the precipitate may be further separated into a series of different viscosity products by first adding propane and lowering the temperature to about 80° F., whereupon the higher viscosity materials separate; i. e., those having a viscosity at 210° F. of from 3000 to 5000 S. S. U., and thereafter progressively raising the temperature to approximately 160° F. with successive separation of materials ranging in viscosity from approximately 2000 S. S. U. at 210° F., down to approximately 400 S. S. U. at 210° F.

These thus precipitated materials and similar materials, precipitated from hydrocarbon solvent solutions other than a propane solution, represent high molecular weight naturally contained hydrocarbons of the paraffin base oil fraction from which they have been precipitated, the paraffin base oil being characterized in that it has a content of not substantially in excess of 0.2% of asphaltic like materials (Holde method).

These natural high molecular weight high viscosity hydrocarbon materials which have undergone no thermal decomposition or chemical change may in some adaptations of the present invention be directly employed as the impregnating agent.

For other specific adaptations of the present invention, it has been found desirable to employ chemical condensation products of these natural high molecular weight viscous hydrocarbon components of the paraffin base oil fraction. Such condensation products may advantageously be produced by air blowing the natural high molecular weight viscous materials under controlled temperature conditions.

Air blowing of the source materials results in an exothermic reaction thus rendering the process at least partially self-sustaining without application of further extraneous heat, although it may be necessary to add extraneous heat, depending upon the source material being treated and the design of the particular vessel in which the air blowing operation is carried on. The rate of air blowing is so controlled as to maintain the temperature at approximately 450 to 575° F.

The mechanism of the chemical condensation of the complex natural viscous materials precipitated from warm hydrocarbon solutions of the paraffin base oils is not fully understood but is believed to be induced by the presence of air due to oxygen being taken up by certain of the molecules, after which molecules are condensed with a splitting off of water to yield a higher molecular weight chemically condensed product. These products may, for convenience, be termed "polymers," but it is to be understood that such designation is not intended to signify that they have resulted wholly from the union of like molecular structures.

The following represent typical illustrations for the production of impregnating agents contemplated for use in producing impregnated fibrous materials in accordance with the instant invention.

(*a*) A natural high molecular weight viscous precipitate was derived from a paraffin base cylinder stock in the manner hereinabove outlined, and represents the heavier molecular weight portion separated from the overall warm propane solution precipitate at a temperature of approximately 80° F.

These natural occurring precipitated materials had the following properties:

Visc. S. S. U. at 210° F	5250
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10-2	Too soft to give a reading
Ball and ring softening point (A. S. T. M. D36–26)° F	Below 80° F.
Molecular wt. (avg.)	1380
Iodine No. Wijs method	57
Carbon atoms per double bond (avg.)	32

Starting with this source material, the same was charged to a suitable apparatus for air blowing and initially heated to a temperature of approximately 500° F. accompanied by the introduction of air.

Care was exercised to avoid elevation of the temperature to a degree that would cause flashing. The air blowing in this case was conducted for approximately two hours with the temperature maintained within the range of from 480 to 500° F. This operation resulted in the production of a condensation product having the following characteristics:

Visc. S. S. U. at 210° F.	Too viscous for ready determination
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2	101
Ball and ring softening point (A. S. T. M. D36–26) °F.	115° F.
Molecular weight average	1900
Iodine No. Wijs method	41
Carbon atoms per double bond (avg.)	44

It is to be noted that this product possessed a lower iodine number, a lower penetration, a higher softening point, and a much higher molecular weight than did the source material from which it was derived by condensation in the presence of air.

(*b*) The same viscous source material was used as in illustration (*a*). The air blowing was conducted under conditions similar to those in illustration (*a*) except that the air blowing was con-

tinued for a period of approximately nine hours. The resulting condensation product was found to possess the following characteristics:

Visc. S. S. U. at 210° F. Too viscous for ready determination
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2 ---- 23
Ball and ring softening point (A. S. T. M. D36–26)° F. ---- 218°
Molecular weight average ---- 2130
Iodine No. Wijs method ---- 39
Carbon atoms per double bond (avg.) ---- 46

(c) The source material for this operation differed somewhat from the source materials of illustrations (a) and (b) above in that it constituted a less viscous portion of the material which had been separated from the overall warm propane precipitate at a temperature of approximately 150° F. This somewhat less viscous source material had the following characteristics:

Visc. S. S. U. at 210° F. ---- 746
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2 ---- Too soft to give a reading
Ball and ring softening point (A. S. T. M. D36–26)° F. ---- Below 80° F.
Molecular weight average ---- 1090
Iodine No. Wijs method ---- 43
Carbon atoms per double bond (avg.) ---- 42

This viscous oil precipitate was subjected to air blowing in a manner comparable to that set forth in illustration (a) above, with the exception that during the latter stages of the air blowing the temperature was caused to rise to approximately 520° F. and the air blowing was continued for approximately 15 hours. The resulting condensation product thus produced possessed the characteristics shown in the following table:

Visc. S. S. U. at 210° F. Too viscous for ready determination
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2 ---- 75
Ball and ring softening point (A. S. T. M. D36–26)° F. ---- 147° F.
Molecular weight average ---- 1990
Iodine No. Wijs method ---- 33
Carbon atoms per double bond (avg.) ---- 55

(d) The source material in this illustration constitutes a high molecular weight viscous material separated from propane precipitated wax by treatment of the wax with additional propane and precipitating the high molecular weight viscous hydrocarbons from the warm propane wax solution at a temperature of approximately 165° F. This source material had characteristics as follows:

Visc. S. S. U. at 210° F. ---- 543
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2 ---- Too soft to give a reading
Ball and ring softening point (A. S. T. M. D36–26)° F. ---- 106
Molecular wt. average ---- 1190
Iodine No. Wijs method ---- 35.9
Carbon atoms per double bond (avg.) ---- 51

This viscous source material derived from wax was air blown in a manner comparable to that set forth under (a) above, with the exception that in the latter stages of the air blowing the temperature was caused to rise to approximately 570° F. and the blowing was continued for a period of approximately 22 hours, at which time the resulting product had characteristics as follows:

Visc. S. S. U. at 210° F. Too viscous for ready determination
Penetration 100 g. total wt. (A. S. T. M. D5–25) CM×10–2 ---- 41
Ball and ring softening point (A. S. T. M. D36–26)° F. ---- 315
Molecular wt. average ---- 2200
Iodine No. Wijs method ---- 35.2
Carbon atoms per double bond (avg.) ---- 52

From the foregoing illustration, it is apparent that impregnating materials of a wide variety of specific characteristics may be obtained from a paraffin base oil stock for use in accordance with the present invention.

A typical high molecular weight naturally contained viscous precipitate separated from a warm propane solution of a paraffin base cylinder stock shows the following penetration characteristics:

Penetration (A. S. T. M. D–5–25), CM.×10–2

Temperature, °F.	100 grams total weight
30	86
40	174
50	206
60	302
70	

A typical condensation product condensed from naturally contained high molecular weight viscous materials precipitated from a warm propane solution of a paraffin base stock shows the following penetration characteristics:

Penetration A. S. T. M. D–5–23), CM.×10–2

Temperature, °F.	200 grams total weight
30	19
40	21
50	24
60	26
70	32
80	39
90	42
100	61

All of the impregnating agents contemplated by the present invention are completely soluble in the non-polar solvents such as benzene, toluene, xylene, chloroform, carbon tetrachloride, and carbon disulfide, and virtually completely soluble in 88° Baumé naphtha.

Roofing

One exemplification of the present invention may take the form of roofings in their various forms.

An advantageous impregnated product of the present invention comprises so-called prepared roofing made up of either a single layer of saturated coated "roofing felt" or from a plurality of superimposed layers.

When the prepared roofing is in the form of a single layer of roofing felt, it is, in accordance with the present invention, produced as follows. The roofing felt is first saturated with a relatively soft impregnating agent such, for example, as the naturally contained high molecular weight viscous material prior to chemical condensation conforming to the exemplary specifications of illustration (a) above. This saturated single layer of roofing felt, after initial saturation, is preferably surfaced on both sides with a harder

impregnating agent such, for example, as the condensation product, exemplary specifications of which are given under illustration (*b*) above. The final surface of the thus prepared roofing may, of course, be provided with the customary "dusting finish" of finely powdered mineral materials.

The single layer roofing may be produced by first saturating the felted or woven fabric by passing the same through a bath of mildly heated impregnating agent. The saturated sheet is then coated on each surface with the harder impregnating and coating layer.

When a multiple or laminated layer roof is produced, in accordance with the present invention, the base materials of the layers which may be rag felts, asbestos felts, woven fabrics, or combinations of these, are first saturated and impregnated with one of the impregnating agents of the present invention, preferably an impregnating agent conforming to the exemplary specifications of the naturally contained viscous material separated from the paraffin base oil and conforming to the exemplary specifications of the uncondensed material under illustration (*c*) above. After the separate layers have been thus impregnated, they may be advantageously joined together by coating their adjacent surfaces with the impregnating agent conforming to the condensed product of illustration (*a*) above. The exposed surface of the multiple or laminated layer roofing material may advantageously carry a coating of impregnating agent representing the condensed product of illustration (*b*) above, or even a somewhat harder product derived by more extended air blowing during chemical condensation.

The foregoing examples of roofings are but illustrative of the adaptations of the present invention in this field. It will be appreciated that by suitable control over the production of the impregnating agent, factors such as saturating capacity, adhesiveness, resistance to penetration, and the like, may be readily controlled. It will also be appreciated that the various impregnating agents herein described may be blended with other compatible impregnating agents, such as, for example, gilsonite, coal tar pitches, synthetic resins, and the like, for use in accordance with the present invention. Additional inorganic fillers such as clay and sand may also be employed.

It is a characteristic of roofings prepared in accordance with the present invention that they are flexible and retain this flexibility without cracking or chipping even under extremely low temperature conditions such as 20° below 0° F. Even at temperatures as low as 40 to 60° below zero, the novel roofing compositions of the present invention appear to absorb their own expansion and contraction without losing their adhesive properties. Impregnating agents of the present invention may, of course, be produced with a sufficiently high softening point to permit of their resistance to any normal heat. Therefore, roofings conforming to the present invention are highly weather resistant. They are heat resistant and possess remarkable insulating and sound-deadening characteristics.

It is, of course, within the province of the present invention to produce individual and strip shingles and to provide various of the ornamental granular surface coatings.

Floor coverings

A further adaptation of the present invention resides in the provision of floor coverings, more particularly, such as may be substituted for linoleum. In the production of the improved floor covering of the present invention, a sheet of rag felt or like material, or fabric of high tensile strength and uniformity, is saturated and impregnated with one of the harder and higher softening point impregnating agents of the present invention. The condensation products of illustrations (*b*) and (*d*) above are advantageously used in this adaptation of the present invention. Blends of any of the herein described impregnating agents with other compatible impregnating agents, such as gilsonite, coal tar pitch, coumarone-indene resins, phenol-formaldehyde resins, chlorinated rubber, drying oils, and the like, may also be used. The saturated sheet may advantageously be provided with a backing of burlap although, when the impregnating agent is properly selected, such backing may be dispensed with. Fillers, such as wood flour, cork, clay, barium sulfate, and the like, may be incorporated, if desired.

In another adaptation of this phase of the invention, the condensation products of illustrations (*b*) and (*d*) above may be mixed with a suitable dryer such as a drying oil, for example, China-wood, tung or linseed oil, and, if desired, with incorporated asbestine, wood, or other fibers, and directly applied to a floor. These same substances may also be rolled into sheets or formed into blocks by suitable means.

The floor covering of the present invention is both alkali and acid-resistant, fire-resistant, and retains its flexibility for long periods, permitting the same to be rolled, applied, and removed without cracking.

Heat insulating and sound deadening material

One product conforming to the present invention is particularly adapted for heat insulating and sound-proofing. It is especially valuable in insulating and sound-proofing steel automobile bodies and like structures. An advantageous composition for heat insulating and sound-proofing comprises asbestos fibers or asbestos impregnated with an impregnating agent of the present invention having specifications conforming generally to the exemplary specifications of the condensation product of illustration (*b*) above. The quantity of asbestos or other fibers may, of course, be suitably regulated to give the proper texture to the insulating and sound deadening material. Suitable fillers, such for example, as wood flour, cork, clay, barium sulfate, and the like, may be incorporated, as desired. This material can be applied to the metal surface in the form of a spray and, when so applied, will be found to be both cohesive and adhesive. When applied to steel surfaces, the novel insulating and sound-proofing material of the present invention will adhere to such surface even at extremely low temperatures and does not pull away or disintegrate as has been the case with prior art products intended for such use.

Impregnated fibers or fabric also provide excellent anti-squeak materials for interposing between various parts of automobile frames, bodies, and the like.

It is also within the purview of the present invention to provide heat insulating and sound-proofing wall boards for use on the interior of

building structures. Fire-proof properties may additionally be imparted by the employment of appropriate non-inflammable fibrous materials.

Impregnated and saturated paper

A further adaptation of the present invention resides in the impregnating and saturation of various paper stocks to produce such products as heat insulating and building papers, impregnated papers adapted for electrical insulation, and impregnated papers suitable for such uses as mulching plants, protecting green concrete, as well as papers for wrapping and packing purposes.

Water-proof papers have a wide variety of uses. Insulating and building papers are prepared in accordance with the present invention from a strong paper of open texture. Raw papers from No. 30 to No. 180 are well adapted to this use and may be selected from papers composed of such fibers as jute, hemp, manila, chemical wood fibers, mechanical wood fibers, and rag fibers.

Suitable impregnating agents for this type of product, in accordance with the present invention, are the condensation products of illustrations (*b*) and (*c*) above. The paper is saturated by warming the impregnating agent to the requisite degree. An alternate method for producing building and insulating papers comprises introducing an aqueous dispersion of the impregnating agents comforming to the specifications for the condensation products given under illustrations (*b*) and (*c*) above, with the paper fibers in the beater before the web is formed on the conventional paper machine. The aqueous dispersion of the impregnating agents may be produced through the medium of ammonium stearate.

For wrapping and packing purposes, so-called kraft paper stock is suitable and may be impregnated on either one or both sides.

The impregnating agents contemplated by the present invention have exceedingly high dielectric properties, rendering them particularly well adapted for the impregnation of papers adapted to be used for electrical insulating purposes in telephone switchboards and for the wrapping of cables and the like. In the latter uses, it is advantageous to select the impregnating agents in the form possessing a high degree of adhesiveness. In this connection, condensation products of the naturally contained high molecular weight viscous materials precipitated from a warm hydrocarbon solution of a paraffin base oil product are preferred since they have been found to be both cohesive and adhesive throughout a wide range of temperature conditions.

It will be understood that the appropriate impregnating agent for the particular character of the paper and its intended use may be obtained, in accordance with the present invention, by properly selecting the same from the wide variety of available impregnating agents producible from the paraffin base oil derivatives as hereinbefore more fully explained.

Electrical insulation

The impregnating materials conforming to the present invention are well adapted for use as electrical insulating materials in so-called "junction boxes" or "pot-heads." Due to the high dielectric properties and water-proof characteristics of the impregnating agents of the present invention, they are especially adapted to this service. An appropriate impregnating agent to be mixed with suitable fibers for this use is the chemical condensation product, the exemplary specifications of which are given under illustration (*b*) above. It is also within the purview of the present invention to produce insulation materials for electrical transmission wires. In this use, the cotton braiding employed as the protective layer for the wire is impregnated with one of the harder impregnating agents conforming to the present invention such as, for example, a condensation product produced by the procedure set forth under illustrations (*b*) and (*c*) above, but wherein the air blowing has been continued for a somewhat longer period to thereby increase the hardness of the impregnating agents.

In modifications of this aspect of the invention, the impregnating agent may be blended with rubber latex, gilsonite, coal tar pitch, coumarone-indene resins, phenol-formaldehyde resins, chlorinated rubber, drying oils, and the like, or with other impregnating agents obtained from a paraffin base oil product by precipitation or solvent extraction.

Electrical insulating tape may also be prepared in accordance with the present invention by passing strips of a suitable fabric, such as cotton or muslin, through a bath of the impregnating agent. In this case, the impregnating agent will be selected so as to have the requisite adhesiveness at room temperature and capable of retaining this property for prolonged periods on exposure to air. This property of the impregnating agent is best obtained when the naturally contained high molecular weight viscous material derived from a paraffin base oil by precipitation from a warm propane solution are air-blown under the conditions of illustration (*a*) above, for a period of approximately two hours, depending upon the particular character of the natural viscous material being chemically condensed. Additionally, an excellent impregnating agent for insulating tape may be produced by blending the chemically condensed product, the exemplary specifications for which are given under illustration (*b*) above, with the naturally contained viscous product, the specifications for which are given under the first tabulation of illustration (*a*) above. Appropriate proportions of these two impregnating agents may be arrived at by suitable tests for penetration and adhesiveness. However, a blend of 20% of the natural viscous material of the first tabulation under illustration (*a*) with 80% of the condensation product under illustration (*b*) above has been found to give an excellent impregnating agent for insulating tape and one providing a tape having both cohesive and adhesive properties that are retained over long periods through extremely wide variations in temperature.

To the end that any misunderstanding as to the usage of terms herein may be avoided, the following is a definition of the usage of various terms employed in the specification and claims:

The term "a paraffin base oil" embraces crude oil which carries solid paraffin hydrocarbons and practically no asphalt.

The term "a high molecular weight viscous derivative of a residuum of a paraffin base oil" embraces a derivative of a distillation residue such as a cylinder stock residue of a paraffin base oil containing substantially no more than 0.2% asphaltic-like materials by the Holde method.

The term "cylinder stock" designates either a residue derived by distillation of a paraffin base crude or a side stream having similar specifications obtained in fractional distillation of the

paraffin base crude, the viscosity lying within the limits of from 120 at 210° F. to 300 at 210° F.

The term "bright stock" designates a de-waxed cylinder stock as above defined.

The foregoing exemplifications of the adaptations of the present invention are given by way of illustration and not in limitation of the invention. It will be appreciated that various fillers, such as sand, clay, barium sulfate, wood flour, and cork, in addition to those hereinabove mentioned, may be incorporated into the impregnated fibrous materials in various proportions as may be found necessary or advantageous. It will also be appreciated that various cross blends of the impregnating agents obtained in accordance with the teachings of this invention may be utilized to obtain the best results for a given requirement, and such cross-blends are contemplated within the scope of the invention.

Having this described the invention, what is claimed as new is:

1. A composition of matter comprising fibrous material impregnated with a chemical condensation product derived from a high molecular weight viscous material which has been precipitated from a warm solution of a paraffin base oil residuum in a normally gaseous hydrocarbon solvent having from two to four carbon atoms, said precipitated viscous material comprising a natural chemically unmodified constituent of said paraffin base oil residuum.

2. A composition of matter comprising fibrous material impregnated with a chemical condensation product derived from a high molecular weight viscous hydrocarbon material which has been separated by a warm propane solution from a paraffin base oil residuum obtained by ordinary fractional distillation at subcracking temperatures from a paraffin base oil containing not substantially in excess of 0.2% asphaltic-like constituents.

3. A composition of matter comprising fibrous material impregnated with a chemical condensation product derived from a high molecular weight viscous hydrocarbon material which has been precipitated from a warm propane solution of a dewaxed residuum obtained from a paraffin base oil through fractional distillation.

4. A composition of matter comprising fibrous material saturated and impregnated with a chemical condensation product derived from a high molecular weight viscous material precipitated from a warm solution of a paraffin base oil residuum in a normally gaseous hydrocarbon solvent having from two to four carbon atoms, said precipitated viscous material comprising a natural chemically unmodified constituent of said paraffin base oil residuum.

5. A composition of matter comprising fibrous material impregnated with a chemical condensation product derived from a high molecular weight viscous material which has been precipitated from a warm solution of paraffin base oil product in a normally gaseous hydrocarbon solvent having from two to four carbon atoms, said precipitated viscous material comprising a natural chemically unmodified constituent of said paraffin base oil residuum and said composition of matter being further characterized in that it is flexible, cohesive and adhesive over a wide temperature range.

6. A composition of matter comprising fibrous material impregnated with a chemical condensation product derived from a high molecular weight viscous material which has been precipitated from a warm solution of a paraffin base oil product in a normally gaseous hydrocarbon solvent having from two to four carbon atoms, said precipitated viscous material comprising a natural chemically unmodified constituent of said paraffin base oil residuum and said composition of matter being further characterized in that it is heat resistant, acid and alkali resistant, and weather proofed.

WILBERT B. McCLUER.
RALPH W. HUFFERD.
FRANK J. PHILIPPBAR.