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ART OF REFINING OIL.

No Drawing. Original application filed July 7, 1922, Serial No. 573,473. Divided and this application filed October 10, 1925. Serial No. 61,774.

The present invention relates to the art of removing wax from lighter wax-bearing distillates from mineral oils which have been subjected to little or no cracking or thermal decomposition during distillation. An example of such an oil is that known as "34° distillate" from continuous or batch fire and steam distillation of crude oil. This distillate derives its name from the fact that the "cut" forming it is started when the stream from the still has a gravity of approximately 32 to 34° Baumé. The average gravity of "34° distillate" is from 29 to 31° Baumé.

Light wax-bearing, substantially uncracked oils of this character have hitherto not been freed from wax by chilling and filter pressing by reason of the fact that the nature of the wax differs from that of ordinary paraffine or "crystalline" wax and clogs or blocks the filter cloths of the presses. It has hence been customary, in order to free this type of oil from wax, to subject it to a further distillation, usually with steam present in such limited quantities as to permit a considerable cracking or thermal decomposition of the oil during its distillation. As a result of this redistillation, the character of the wax appeared to be altered, enabling it to be readily filtered through filter presses when chilled.

We have found that oil of the character dscribed above may be freed from its wax content without redistillation by diluting it with an oil, a paraffin-wax containing oil of somewhat lower viscosity so that the diluted oil will have a viscosity of 75 seconds Saybolt or lower at a temperature of 100° F. The average viscosity of the 34° distillate is 80 to 85 seconds Saybolt at 100° F. We have found that the most satisfactory and practical results are secured by dilution to a viscosity of 55 to 65 seconds Saybolt and preferably about 60. After such dilution the oil may be chilled and filter-pressed in the usual manner in accordance with the cold test desired in the product. Any suitable diluent oil may be employed; for example, an unpressed distillate of somewhat lower viscosity, such as the 30° Baumé gravity distillate from tower or coking stills having a viscosity of about 50 seconds Saybolt at 100° F., and the like. The presence of wax in the diluent, for example, in the case of the last-mentioned diluent, does not interfere with the present operation since it is removed simultaneously with the removal of the wax from the substantially uncracked oil, but on the contrary the former wax is thought to provide a network which has an important function in the removal of the latter wax. The diluent employed is of a lubricating oil type; that is, of higher specific gravity and viscosity than burning oils.

The proportion of diluent employed may vary in accordance with the nature of the diluent and the viscosity to which it is desired to reduce the diluent mixture. For example, when tower still distillate is employed as the diluent, from 10 to 25% may be used. The precise proportion employed does not substantially affect the effectiveness of the filter-press operation, but is controlled by the expense of further refining subsequent to pressing and like operations.

The diluted oil is chilled in the usual manner, for example, to 0° or −10° F. and forced through the filter-presses, in which wax is removed. The oil separates freely from the wax in the filter-presses, and is subsequently further refined for the production of the desired lubricants in any desired manner. It is sometimes found desirable, as in pressing other oils, to carry out the filter-pressing in two stages, chilling, say to 10 to 15° F. and filter-pressing in the first stage and subsequently chilling the once-pressed oil to a lower temperature, say 0° F. or −10° F. and again pressing the oil.

This application is a division of our prior application Serial No. 573,473, filed July 7, 1922. (Patent No. 1,582,923, issued May 4, 1926.)

We claim:

1. The method of removing wax from lighter wax-bearing, substantially uncracked oil distillates which consists in admixing with such distillates a paraffin wax-bearing oil of higher viscosity than the burning oils

and of lower viscosity than the oil under treatment, chilling and filter-pressing the mixture.

2. The method of removing wax from lighter wax-bearing, substantially uncracked oil distillates which consists in admixing with such distillates a wax-bearing distillate from fire stills of higher viscosity than the burning oils and of lower viscosity than the oil under treatment, chilling and filter-pressing the mixture.

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