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PROCESS OF RECONDITIONING CRANK-CASE OIL.

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The present invention relates to the treatment of lubricating oils after sustained service for the purpose of reconditioning such oils for further use. The primary object of the invention is the provision of a novel process for reconditioning used crank case oils.

Another object of the invention is the provision of such a process which includes a refining treatment for varying the viscosity, gravity, flash and fire tests desired for the product.

Many attempts have heretofore been made seeking the recovery of lubricating oils from used crank case lubricants. Such processes do not give an efficient product and are not capable of being developed for altering the characteristics of the produced lubricant as desired. The process contemplated by the present invention enables the production of reconditioned lubricating oils having such characteristics as regards to viscosity, color and the like, which may be controlled as desired.

In the application of my process to practice, the oil to be treated, which is mineral lubricating oil which is generally composed of a mixture of various oils drained from the crank cases of internal combustion engines, is placed in a still and the ligher hydrocarbons and freely volatile contents are topped off by heat distillation at a temperature varying from 175 to 195 degrees centigrade depending upon the specific gravity of the oil treated. The degree of distillation may be varied as desired to control the characteristics of the residual oil in the still.

At the conclusion of the distillation step the residual oil is drawn from the still and cooled by any suitable means, after which it is filtered. In cooling down the residual oil I prefer to circulate same through a water cooled coil but any other means may be employed as desired. In the filtration step, the fine metallic particles and foreign bodies present in all used crank case oils are eliminated.

Subsequent to filtration the oil under treatment is further subjected to a cooling process to reduce the temperature below 95 degrees centigrade while at the same time the oil is agitated by any suitable means. I prefer to accomplish the agitation by passing a blast of air through the body of the oil, but the process is not limited to this specific mode of treatment.

When the temperature of oil has been reduced to atmospheric temperature it is further agitated for a period of approximately 30 minutes with a quantity of sulphuric acid. In this step of the process the color of the finished product may be regulated and determined, as the color is dependent upon the quantity of acid employed. The greater the quantity of acid employed, the lighter will be the color of the product. After the acid treatment the oil is washed by violent agitation with an approximately equal volume of water. After a thorough washing the mixture is allowed to settle and the water is then drawn off.

Subsequently the oil is heated and maintained at a temperature of approximately 200 degrees centigrade while being violently agitated for about 30 minutes with a substantially five per cent water solution of sodium hydroxide. At the termination of this step the mixture is allowed to settle and the sodium hydroxide solution is drawn off.

Subsequently the body of oil is again washed by agitation with an approximately equal volume of water and after settling the water is drawn off and the emulsified oil subjected to the action of steam heated coils at about 220 degrees F. to evaporate off the contained water. The body of oil is then agitated with some diatomaceous material preferably fuller's earth, after which it is filtered to produce a finished product which is the reconditioned mineral lubricating oil.

At the termination of my process the reconditioned oil is capable of serving all purposes and in the same degree, as possessed by the oil before its initial use in service. The process is not to be limited to the specific treatment described in the practical embodiment of its principles as set forth herein, and I desire it to be understood that the process may be practiced in any way as will fall within the scope of the invention as claimed.

I claim:

A process for reconditioning used crank case mineral lubricating oil containing diluents, which comprises in successive steps, distilling off of the low boiling diluents of the oil, cooling and simultaneously filtering the residual oil, further cooling and simultaneously agitating the oil at a temperature below 95 degrees centigrade, agitating the oil with sulphuric acid for a period of approximately thirty minutes, washing the oil in a

substantially equal volume of water, heating the washed oil, agitating the heated oil at a temperature of approximately 200 degrees centigrade with a solution of sodium hydroxide over a period of approximately thirty minutes, washing the oil with an approximately equal volume of water, heating the oil and evaporating off the intermingled water, subsequently agitating the oil with diatomaceous earth, and filtering the oil whereby purified lubricating oil is produced.

In testimony whereof I have affixed my signature.

LELAND L. ODOM.