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ERNST ZERNER, OF VIENNA, AUSTRIA.

PROCESS OF OXIDIZING LIQUID HYDROCARBONS.

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To all whom it may concern:

Be it known that I, ERNST ZERNER, a citizen of the Republic of Czecho-Slovakia, residing at Vienna, Austria, have invented certain new and useful Improvements in Processes of Oxidizing Liquid Hydrocarbons, of which the following is a specification.

This invention relates to the process of oxidizing liquid hydrocarbons by treating them with an oxygen-containing gas as has already been suggested for oxidizing paraffin, this treatment being known as blowing.

The application of the experiences gathered in blowing paraffin to the oxidation of liquid hydrocarbons for instance the distillation products of rock oil or petroleum meets with considerable difficulties. In the first place higher temperatures are required for this reaction than the blowing of molten paraffin which results in the formation of less valuable products. Further the fatty acids thus produced and more particularly the soaps produced therefrom possess an objectionable smell which is imparted to and strongly retained by the goods and even by the human skin washed with such soap.

According to my invention the liquid hydrocarbons are refined, prior to blowing them with air or oxygen, with liquefied sulphurous acid, in a manner somewhat resembling the well known refining process of Edeleanu but contradistinguished from this latter process in that the treatment with sulphurous acid is much more intense and is continued until at least all of the unsaturated hydrocarbons and compounds present in the raw material are taken up by the sulphurous acid. The hydrocarbons thus refined readily oxidize under the action of air or oxygen and the blowing of liquid hydrocarbons thus refined may be effected without any difficulties and very satisfactorily even in the presence of an agent having basic properties. Heretofore the presence of the said substances impeded the reaction to such an extent that even at very high temperatures only a very small output could be obtained so that it was erroneously believed that the presence of alkaline substances practically prevents the oxidation.

The Edeleanu refining process having had for its main object to obtain products withstanding almost absolutely any action of air it could by no means be expected that by continuing this refining process as above set forth, products could be obtained which are more readily oxidizable by air or oxygen than the raw material itself. Moreover by this continued treatment with liquid sulphurous acid also those constituents of the hydrocarbons which on blowing with air or oxygen give rise to the objectionable smell, be it by decomposition, or be it by the formation of undesirable oxidation products, are eliminated or in any case reduced in quantity.

The following is an example of carrying into practice the present process:

100 parts by weight of raw gas oil are extracted in a closed vessel by a continuous current of liquefied sulphurous acid caused to flow through the oil for a period of about 15 hours at about a temperature of + 25° C. 60% of the raw oil are dissolved. The undissolved remainder of the oil is first freed from the sulphurous acid retained by it by distillation and then air or oxygen is blown therethrough in the presence of substances having basic properties, preferably of slaked lime.

I claim:

1. A process for oxidizing liquid hydrocarbons consisting in dissolving all the unsaturated compounds contained therein by liquefied sulphurous acid, evaporating the sulphurous acid contained in the undissolved residue and blowing the residue thus refined with a current of an oxygen-contained gas.

2. A process for oxidizing liquid hydrocarbons consisting in forcing therethrough a continuous current of liquefied sulphurous acid, until all the unsaturated compounds contained in the hydrocarbon are dissolved in such acid, evaporating the sulphurous acid contained in the undissolved residue and blowing the residue thus refined with a current of oxygen containing gas.

3. A process for oxidizing liquid hydrocarbons consisting in forcing therethrough a continuous current of liquefied sulphurous acid, until all the unsaturated compounds contained in the hydrocarbon are dissolved in such acid, evaporating the sulphurous acid contained in the undissolved residue and blowing the residue thus refined with air.

4. A process for oxidizing liquid hydrocarbons consisting in dissolving all the unsaturated compounds contained therein by liquefied sulphurous acid, evaporating the

sulphurous acid contained in the undissolved residue and blowing the residue thus refined with a current of an oxygen-containing gas in the presence of an agent possessing basic properties.

5. A process for oxidizing liquid hydrocarbons consisting in dissolving all the unsaturated compounds contained therein by liquefied sulphurous acid, evaporating the sulphurous acid contained in the undissolved residue and blowing the residue thus refined with a current of an oxygen-containing gas in the presence of slaked lime.

6. A process for oxidizing liquid hydrocarbons consisting in dissolving all the unsaturated compounds contained therein by liquefied sulphurous acid, evaporating the sulphurous acid contained in the undissolved residue and blowing the residue thus refined with a current of air.

In testimony whereof I have affixed my signature in the presence of two witnesses.

ERNST ZERNER.

Witnesses:
RICHARD QUINN,
HANS WINTERMIL.