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PARAFFIN SOLVENT

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No Drawing. Original application April 25, 1941, Serial No. 390,426, now Patent No. 2,317,038, dated April 20, 1943. Divided and this application March 2, 1943, Serial No. 477,739

3 Claims. (Cl. 252—8.55)

The present invention relates to a composition of matter and method for removing paraffin, and more particularly for removing paraffin from the tubing of an oil well or gas well.

It is an object of this invention, to provide a combination of water, kerosene, and bentonite, which may be applied to the well tubing to aid in the removal of paraffin.

It is another object of this invention, to provide a particular method of inserting said composition into the tubing to cause the removal of the paraffin.

In the past, various paraffin solvents have been used such as kerosene, and other hydrocarbon derivatives. The use of kerosene in association with spent fuller's earth has been suggested for a non-aqueous drilling fluid in which the earth performs a weighting action to prevent blowouts. Also, the use of a water and a heavy oil emulsion with a bentonite clay to increase the viscosity of the emulsion is taught in the patented art. However, these last two types of materials are used in a manner not suggestive of this invention nor could they coact with the paraffin to accomplish its removal as is done while practicing the herein disclosed invention.

It has been found that the paraffin in a well tubing collects near the top of the well, and in the past in addition to the solvent method suggested above, it has been usual to remove such paraffin obstruction by scraping tools.

The present invention is an improvement in the solvent method of paraffin removal and the new solvent includes a mixture of water, kerosene and a bentonite clay mixed in substantially the following proportions:

Water	gallons	25
Bentonite	pound	1
Kerosene	quart	1

The bentonite and kerosene are thoroughly mixed by agitation and the water is added in the well.

In the preferred method of using the mixture of this invention, approximately 10 gallons of water which has been heated to 212° F. is forced into the tubing and then a mixture of ½ pound of bentonite and 1 pint of kerosene is forced into the tubing. These steps are repeated, and thus an additional 10 gallons of hot water and another ½ pound of bentonite and 1 pint of kerosene are placed in the tubing. The remaining 5 gallons of water may then be forced into the well and the mixture is permitted to remain in the tubing for approximately thirty minutes.

The total amount of the material to be used in one well will of course be determined by the amount of paraffin to be removed. However, the above named proportions should be followed in the preferred form of practicing the invention.

The hot water and kerosene both act upon the paraffin to soften the same and put it in a condition whereby it will more readily intermix with the bentonite. It has been found that the paraffin so conditioned will combine with the active bentonite clay to form a particularly slick resultant mixture a portion of which coats the walls of the tubing and enables the paraffin to be more readily removed. By "slick" is meant the property of the bentonite in acting upon the paraffin to change it from a hard congealed mass to a removable condition which may be described as somewhat similar to the condition of ice cream which clings to the paddle of the home freezer or a cake batter, whereby the oily reaction product of bentonite and paraffin as distinguished from a solution has a sufficient body-like character that it can be removed completely because of its imparted stability. After the bentonite has been thoroughly intermixed with the paraffin such as will result from the thirty minute period suggested above, the mixture is removed from the well by the pressure from within.

While it is most desirable that the preferred method of applying the herein disclosed paraffin removing composition be followed, it is possible that variations therein may be made to obtain certain of the new results of the present invention. The kerosene and bentonite alone could be used to soften the paraffin and intermix therewith to provide the slick lubricating mixture which permits the paraffin to be more easily removed. Further, the heating step, which aids in making the paraffin more readily available for intermixture with the kerosene and bentonite, could be used, omitting the kerosene. But each of these changes would necessitate a longer period of association between the paraffin and the bentonite and are not therefore as useful as the preferred example of the invention.

Variations in the quantities of the suggested ingredients may be made, but it has been found that the above proportions are most suitable. If insufficient bentonite is used, the lubricating qualities of the resulting paraffin mixture are not as good as with the preferred quantity named above, thus the paraffin cannot be so easily removed. It has been found that approximately 1 quart of kerosene to 1 pound of bentonite provides the proper softening of the paraffin to enable the

bentonite to most efficiently intermix with the paraffin.

The quantity of water is not particularly critical, but an excess should be provided to sufficiently heat the paraffin and to provide a liquid phase for more readily effecting a mixture of the other ingredients with the paraffin.

This application is a division of my earlier application, Serial No. 390,426, filed April 25, 1941, which has now matured into Patent No. 2,317,038, granted April 20, 1943.

I claim:

1. A composition of matter for removing paraffin from a tubing wall including the following ingredients in substantially the named proportions:

Kerosene	quart	1
Bentonite	pound	1

2. A composition of matter for removing paraffin from a tubing wall including the following ingredients in substantially the named proportions:

Water	gallons	25
Kerosene	quart	1
Bentonite	pound	1

3. A composition of matter for removing paraffin from a tubing wall including the following ingredients in substantially the named proportions:

Water at 212° F	gallons	25
Kerosene	quart	1
Bentonite	pound	1

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