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BRUCE B. FARRINGTON, OF BERKELEY, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STANDARD OIL COMPANY OF CALIFORNIA, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF DELAWARE

CLEANING FLUID AND METHOD OF PRODUCING THE SAME

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This invention relates to a cleaning fluid and the method of producing or manufacturing the same. Hitherto, cleaning fluids have been produced through admixing with petroleum distillates a certain percentage of carbon tetrachloride, the carbon tetrachloride being added to form a cleaning fluid which will not take fire or explode. The percentage of carbon tetrachloride required to render the admixture fireproof depends upon the boiling points and flash of the distillate employed. The lighter boiling point distillates which are desirable to employ in cleaning fluids have generally such low flash points that they require the addition of an excessive amount of carbon tetrachloride to render them non-explosive or fireproof at the temperatures at which these fluids are ordinarily employed. It is necessary for the production of a satisfactory cleaning fluid that the petroleum distillate employed should have a relatively low mean boiling point in order that the cleaning fluid will have a quick drying time. Thus, for instance, mixtures of carbon tetrachloride and petroleum which have heretofore been employed as cleaning fluids, have been made from petroleum distillates with a boiling point range of from 100° to 400° F. or thereabouts.

It is an object of the present invention to provide a cleaning fluid comprising an admixture of carbon tetrachloride and a petroleum distillate in which the percentage of the carbon tetrachloride employed is materially reduced while still providing a relatively low boiling point cleaning fluid which is non-explosive at ordinary temperatures or the temperatures at which a cleaning fluid is generally employed.

To raise the flash point of a petroleum distillate sufficient to render the same non-explosive, or to above say 110° F., there is required 60% of carbon tetrachloride when a distillate with a boiling point range of 100° to 400° F. or thereabouts is employed. If the desired flash point is obtained by employing a higher boiling point distillate, the drying time will be too long and there will be a lasting odor on the fabric cleaned by the fluid.

This invention comprehends that the flash point can be raised and the drying time thus kept the same if a distillate is employed for the admixture, which distillate has been fractionated to narrow down the boiling point range of the distillate.

Thus the preferred cleaning fluid and method of manufacturing the same comprises the employment or fractionation of a light petroleum distillate until a product is obtained having a boiling point range between 220° to 375° F., preferably the fractionation being continued until the boiling point range is from 260° to 360° F. Such prepared petroleum distillate is then admixed with carbon tetrachloride sufficient to raise the flash point of a distillate to above 110° F. producing the desired cleaning fluid. With the ordinary petroleum distillate having a boiling point range of from 100° to 400° F., 60% of carbon tetrachloride is required to produce a cleaning fluid of the desired flash point whereas by the employment of the fractionated distillate there is required only 30% of the carbon tetrachloride to obtain the same flash point. Thus a cleaning fluid is provided of equal properties to those now in use at a reduced cost.

It is understood that before adding the carbon tetrachloride the special distillate is preferably treated with acid and washed to form a purified, water-white, sweet smelling product, as is customary in the manufacture of such cleaning fluids.

It is to be understood that this invention is not limited to the specific method of manufacture described to illustrate the invention, but includes all such modifications as come within the scope of the appended claims.

I claim:—

1. A cleaning fluid capable of evaporating with sufficient readiness so as not to leave a ring in material cleaned therewith, and consisting of a petroleum distillate having a boiling point range between 220 degrees F. and 400 degrees F., admixed with sufficient carbon tetrachloride to raise the flash point above 100 degrees F., but containing less than fifty per cent carbon tetrachloride.

2. A cleaning fluid of the class described capable of evaporating with sufficient readi-

ness so as not to leave a ring in material cleaned therewith, and having a flash point above 100 degrees F., comprising a petroleum distillate having a boiling point range of between 220 degrees F. and 400 degrees F., and having a flash point of over 10 degrees F., admixed with sufficient carbon tetrachloride to produce a mixture having a flash point above 100 degrees F., but containing less than fifty per cent carbon tetrachloride.

3. A cleaning fluid of the class described, consisting of a petroleum distillate with a boiling point range of between 220° and 375° F. admixed with sufficient carbon tetrachloride to raise the flash point to above 110° F.

Signed at Richmond, Calif., this 15th day of May, 1925.

BRUCE B. FARRINGTON.