Claims

1. A method for monitoring for the presence of catalyst fines in a heavy fuel oil (HFO), said method comprising:

a) providing a sample of HFO;

b) mixing the HFO sample with a diluent composition comprising a non-polar solvent and with an aqueous reagent composition to provide a test sample, wherein the aqueous reagent composition comprises at least one water soluble inorganic salt and at least one water soluble base;

c) allowing phase separation to occur in the test sample to provide an aqueous phase and an organic phase; and

d) inspecting the aqueous phase of the test sample for the presence of catalyst fines.

2. The method of claim 1, wherein the at least one water soluble inorganic salt is a nitrate salt, a sulfate salt other than calcium sulfate, a halide other than silver halide, sodium carbonate or potassium carbonate.

3. The method of claim 2, wherein the at least one water soluble inorganic salt is sodium chloride.

4. The method of claim 1, wherein the at least one water soluble base is a hydroxide of a Group I or Group II metal.

5. The method of claim 4, wherein the at least one water soluble base is sodium hydroxide.

6. The method of claim 1, wherein the diluent composition comprises a non-polar solvent selected from mineral spirits, kerosene, naphtha, and heavy distillate (CAS # 64741-65-7).

7. The method of claim 1, wherein the diluent composition does not comprise toluene.

8. The method of claim 1, wherein the diluent composition further comprises a phase transfer agent.

9. The method of claim 8, wherein the phase transfer agent is selected from tripropylene glycol monomethyl ether, ethylene glycol, propyl alcohol, isopropyl alcohol and butanol.

10. The method of claim 9, wherein the diluent composition comprises heavy distillate and a phase transfer agent that is tripropylene glycol monomethyl ether.

11. The method of claim 1, wherein separation step c) comprises centrifuging the test sample.

12. The method of claim 1, wherein steps b) and c) take place in different containers.

13. The method of claim 1, wherein the diluent composition and the aqueous reagent composition are added to the heavy fuel oil sequentially.

14. The method of claim 1, wherein the diluent composition and the aqueous reagent compositions are added to the heavy fuel oil simultaneously.

15. A kit, comprising: a sealed container containing a diluent composition comprising a non-polar solvent selected from mineral spirits, kerosene, naphtha, and heavy distillate (CAS # 64741-65-7); and an aqueous reagent composition comprising at least one water soluble inorganic salt and at least one water soluble base.

16. The kit of claim 15, wherein the diluent composition and aqueous reagent composition are provided in separate sealed containers, are premixed and provided in a single sealed container, or both.

17. The kit of claim 15, wherein the at least one water soluble inorganic salt is sodium chloride.

18. The kit of claim 15, wherein the at least one water soluble base is sodium hydroxide.