

I/We Claim:

- 1) An antifoulant formulation comprising:
 - (a) at least one ammonium salt of linear alkyl benzene sulphonic acid;
 - (b) at least one aromatic hydrocarbon;
 - 5 (c) at least one diluent;
 - (d) polyisobutylene succinic anhydride; and
 - (e) at least one alkyl amine.
- 2) The antifoulant formulation as claimed in claim 1, wherein the at least one ammonium salt of linear alkyl benzene sulphonic acid to the at least one aromatic hydrocarbon
10 weight ratio is in the range of 1:1 – 10:1.
- 3) The antifoulant formulation as claimed in claim 1, wherein the at least one ammonium salt of linear alkyl benzene sulphonic acid to the polyisobutylene succinic anhydride weight ratio is in the range of 0.25:1 – 10:1.
- 4) The antifoulant formulation as claimed in claim 1, wherein the at least one ammonium
15 salt of linear alkyl benzene sulphonic acid to the at least one alkyl amine weight ratio is in the range of 1:1 – 20:1.
- 5) The antifoulant formulation as claimed in claim 1, wherein the at least one ammonium salt of linear alkyl benzene sulphonic acid to the at least one diluent weight ratio is in the range of 0.05:1 – 0.4:1.
- 20 6) The antifoulant formulation as claimed in claim 1, wherein the at least one ammonium salt of linear alkyl benzene sulphonic acid has a weight percentage in the range of 5-20 % with respect to the formulation; the at least one aromatic hydrocarbon has a weight percentage in the range of 2-5 % with respect to the formulation; the at least one diluent has a weight percentage in the range of 50-85 % with respect to the formulation; the
25 polyisobutylene succinic anhydride has a weight percentage in the range of 5-20 % with respect to the formulation; the at least one alkyl amine has a weight percentage in the range of 1-5 % with respect to the formulation.
- 7) The antifoulant formulation as claimed in claim 1, wherein the at least one aromatic hydrocarbon is naphthalene, wherein naphthalene may be optionally substituted with
30 C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₁₋₆ alkoxy, C₃₋₆ cycloalkyl, or C₅₋₆ aryl.

- 8) The antifoulant formulation as claimed in claim 1, wherein the at least one diluent is selected from the group consisting of light cycle oil, kerosene, aromatic-rich hydrocarbon diluents, diesel, mineral turpentine oil (MTO), and combinations thereof.
- 9) The antifoulant formulation as claimed in claim 1, wherein the at least one alkyl amine is selected from the group consisting of C₁₂ amine, C₈ amine, C₉ amine, C₁₀ amine, C₁₁ amine, C₁₃ amine, C₁₄ amine, C₁₆ amine, C₁₇ amine, C₁₈ amine, and combinations thereof.
- 10) A process of preparing the antifoulant formulation as claimed in claim 1, the process comprising:
- (a) contacting at least one ammonium salt of linear alkyl benzene sulphonic acid, at least one aromatic hydrocarbon, at least one diluent, polyisobutylene succinic anhydride; and, at least one alkyl amine to obtain a first mixture; and
- (b) processing the first mixture to obtain the antifoulant formulation.
- 11) The process as claimed in claim 10, wherein processing the first mixture is carried out a temperature in the range of 40 - 50 °C for a period in the range of 2-4 hours at a stirring speed in the range of 50 – 200 rpm to obtain the antifoulant formulation.
- 12) A method of inhibiting fouling in a liquid hydrocarbon medium, the method comprising contacting the antifoulant formulation as claimed in any one of the claims 1- 9, and the liquid hydrocarbon medium in the preheat exchangers of crude and short residue.
- 13) The method, as claimed in claim 12, wherein the antifoulant formulation and the liquid hydrocarbon medium weight ratio is in the range of 1:500 – 1:200000.