

We Claim:

1. A crosslinked polymer for dewaxing the lubricating oils, the polymer derived from:
(a) 70-77 weight percentage of at least one alkyl acrylate; (b) 23-28 weight percentage of at least one vinyl aromatic hydrocarbon; (c) 0.1-2.5 weight percentage of at least one crosslinker; and (d) 0.75-2.5 weight percentage of at least one initiator,
wherein the polymer has a number average molecular weight in the range of 5000-15000.
2. The polymer as claimed in claim 1, wherein the at least one alkyl acrylate is selected from the group consisting of octadecyl acrylate, decyl acrylate, dodecyl acrylate, ethylhexyl acrylate, behenyl acrylate, eicosyl acrylate, and combinations thereof; the at least one vinyl aromatic hydrocarbon is selected from the group consisting of styrene, vinyl naphthalene, vinyl anthracene, allyl benzene, methyl styrene, and combinations thereof; the at least one crosslinker is selected from the group consisting of cyclopentadiene, diallyl ether, divinyl benzene, divinyl ether, and combinations thereof; and the at least one initiator is selected from the group consisting of benzoylhydroperoxide, azobisisobutyronitrile, tertbutylhydroperoxide, methylethylketone peroxide, and combinations thereof.
3. A process for preparing the polymer as claimed in any one of the claims 1-2, the process comprising: (a) dissolving at least one alkyl acrylate, at least one crosslinker and at least one initiator in at least one solvent to obtain a first mixture; (b) heating the first mixture to obtain a second mixture; (c) adding at least one alkyl acrylate, at least one vinyl aromatic hydrocarbon, at least one crosslinker, at least one initiator with the second mixture to obtain a third mixture; and (d) heating the third mixture to obtain the polymer.
4. The process as claimed in claim 3, wherein the at least one solvent is selected from a group consisting of xylene, toluene, ethyl benzene, and combinations thereof.
5. The process as claimed in claim 3, wherein the at least one alkyl acrylate has a weight percentage in the range of 45-55 % with respect to the first mixture; the at least one crosslinker has a weight percentage in the range of 0.1-1.0 % with respect to the first

- mixture; and the at least one initiator has a weight percentage in the range of 0.7-1.2 % with respect to the first mixture.
6. The process as claimed in claim 3, wherein heating the first mixture is done at a temperature in the range of 80-120°C for a time period in the range of 2-4 hours.
 7. The process as claimed in claim 3, wherein the at least one alkyl acrylate has a weight percentage in the range of 15-32 % with respect to the second mixture; the at least one vinyl aromatic hydrocarbon has weight percentage in the range of 23-28 % with respect to the second mixture; the at least one crosslinker has weight percentage in the range of 0.1-1.5 % with respect to the second mixture; and the at least one initiator has weight percentage in the range of 0.8-1.3% with respect to the second mixture.
 8. The process as claimed in claim 3, wherein heating the third mixture is carried out at a temperature in the range of 80-120°C for a time period in the range of 2-4 hours.
 9. The process as claimed in claim 3, wherein heating the third mixture is followed by termination with exposure to air to obtain the polymer.
 10. A method for dewaxing the lubricating oil, the method comprising:
 - a. obtaining a feed and at least one solvent;
 - b. contacting the feed, the at least one solvent and the polymer for dewaxing as claimed in claims 1-2 to obtain a blend;
 - c. processing the blend to obtain wax and dewaxed oil;wherein the polymer as claimed in claims 1-2 is in the weight percentage in the range of 0.08-0.12% with respect to the feed.
 11. The method as claimed in claim 10, wherein the feed is selected from the group consisting of petroleum oil, lubricating oil, atmospheric residue, various cuts of vacuum distillation column, light vacuum gas oil, heavy vacuum gas oil, heavy residue oil, and wherein the at least one solvent is selected from a group consisting of methyl ethyl ketone, hexane, methyl isobutyl ketone, propane, petroleum naphtha, ethylene dichloride, methylene chloride, sulphur dioxide and combinations thereof.
 12. The method as claimed in claim 10, wherein contacting the feed with the at least one solvent is in the ratio range of 1:1 to 1:4.

13. The method as claimed in claim 10, wherein processing the blend is facilitated by processes selected from the group consisting of heating, cooling, filtering, and combinations thereof.
14. The method as claimed in claim 13, wherein the heating is carried out at a temperature in the range of 60 to 90°C for a time period in a range of 20 to 30 minutes; wherein the cooling is carried out at a temperature in the range of -10°C to -40°C; and wherein the filtering is done at a pressure in the range of 100-300 mmHg.
15. The method as claimed in claims 10-14, wherein dewaxed oil yield is in the range of 65-85% with respect to the feed.
16. The method as claimed in claims 10-14, wherein dewaxed oil pour point is in the temperature range of 3°C to -20°C.