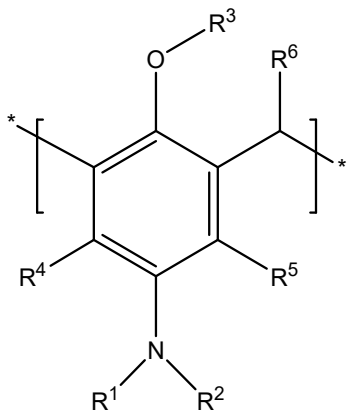
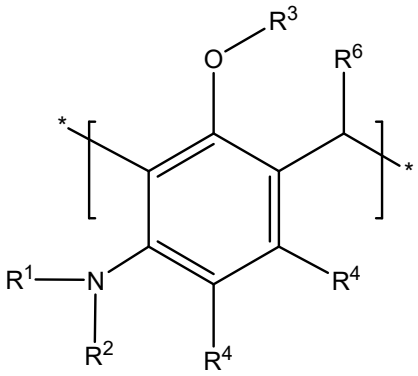
WHAT IS CLAIMED IS:

1. A polymer comprising a repeat unit having the structure of formula I, formula II, or a combination thereof,



I



II

wherein

R^1 and R^2 are $–(CR^7R^8)_n(CHOR^9)(CH_2)_p(O)_qR^{10}$;

R^3 is $[R^{11}O]_xH$;

R^4 and R^5 are independently H, C_1-C_{22} alkyl, $–[R^{11}O]_xH$, or $-NR^1R^2$;

R^6 is H, alkyl, aryl, benzyl, or aralkyl, optionally substituted with an alkyl group, alkoxy group, or hydroxyl group;

R^7 and R^8 are independently H or alkyl;

R^9 is H or $–[R^{11}O]_xH$;

R^{10} is C_1-C_{24} linear, branched, or cyclic alkyl, aryl, or aralkyl;

each R^{11} is independently$–CH_2$-CH_2-, -$CH(CH_3)$-CH_2-, -CH_2-CH_2-CH_2-, -CH_2-CH_2-CH_2-CH_2-, or -$CH(C_6H_6)$-CH_2-;

n is an integer between 1 and 12;

p is 0 or an integer between 1 and 12;

q is 0 or 1; and

each x is independently an integer between 2 and 1000.

2. The polymer of claim 1 wherein R^4 and R^5 are H.

3. The polymer of claim 1 or claim 2 wherein R^7 and R^8 are H.

4. The polymer of any one of claims 1 to 3 wherein R^{10} is selected from n-octyl, isooctyl, n-decyl, isodecyl, n-dodecyl, n-tetradecyl, n-hexadecyl, n-hexyl, n-butyl, isobutyl, t-butyl, n-pentyl, isopentyl, or 2-ethylhexyl.

5. The polymer of any one of claims 1 to 4 wherein R^6 is H. 1.

6. The polymer of any one of claims 1 to 5 wherein n, p, and q are 1.

7. The polymer of any one of claims 1 to 6 comprising 1-100 of the repeat units.

8. The polymer of any one of claims 1 to 7 wherein R^4, R^5, and R^9 are H, and x is an integer between 2 and 20.

9. The polymer of any one of claims 1 to 8 further comprising a second repeat unit comprising the condensation product of a phenolic compound and an aldehyde.

10. The polymer of claim 9 wherein the phenolic compound is phenol, resorcinol, pyrocatechol, hydroquinone, phloroglucinol, hydroxyhydroquinone, or a combination of two or more thereof.

11. The polymer of claim 9 or claim 10 wherein the aldehyde is formaldehyde, acetaldehyde, benzaldehyde, vanillin, salicylaldehyde, glyoxal, glyoxylic acid, or a combination of two or more thereof.

12. The polymer of any one of claims 1 to 11 wherein each R^{11} is $–CH_2-CH_2-$.

13. The polymer of any one of claims 1 to 12 wherein each R^{11} is selected from $–CH_2-CH_2-$ and $-CH(CH_3)-CH_2-$.

14. The polymer of any one of claims 1 to 13 wherein the polymer excludes repeat units having the structure of formula II.

15. A composition comprising a polymer of any one of claims 1 to 14 and a solvent, the composition comprising 1 wt% to 99.9 wt% of the polymer.

16. A composition comprising a crude oil, a wash water, and a polymer of any one of claims 1 to 14 or a composition of claim 15.

17. A method of treating an industrial process stream, the method comprising adding a polymer of any one of claims 1 to 14 or a composition of claim 15 to an industrial process stream to form a treated industrial process stream, wherein the industrial process stream comprises a crude oil and a wash water formed during crude oil purification.

18. The method of claim 17 wherein the method further comprises allowing the treated industrial process stream to stand undisturbed for a period of 10 minutes to 12 hours.

19. The method of claim 17 or claim 18 wherein the adding is adding 0.1 ppm to 10,000 ppm of the polymer of claim 1 to the industrial process stream.

20. Use of a polymer of any one of claims 1 to 14 or a composition of claim 15 to resolve an emulsion in an industrial process stream, wherein the industrial process stream comprises a crude oil and a wash water formed during crude oil purification.