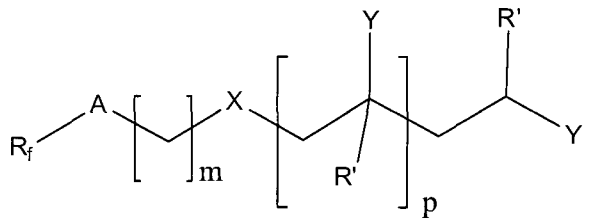
CLAIMS

1. A composition comprising a surfactant having the formula



wherein R_f is $CF_3(CF_2)_n$ or $CHF_2(CF_2)_n$, wherein n is 3-5;

A is a linker selected from the group consisting of $-CH_2CH_2-$, $-CH_2CH_2-S-$, $-CH_2CH_2-O-$, $-CH_2CH_2-CO-NH-$, $-CH_2CH_2-NH-CO-$ $-SO_2NH-$, $-NHSO_2-$, -OC(O)-, -C(O)O-, -S(O)-, and $-SO_2-$;

X is selected from the group consisting of –S-, -O-, $-SO_2-$, -NR-, $-CO_2-$, -CONR-, $-SO_2NR-$, -OP(O)(OR)O-, S(O), -OC(O)-, -NRC(O)-, and $-NRSO_2-$;

Y is selected from the group consisting of –CONHR, CO_2H, $-CO_2R$, –OC(O)R, and $-C_6H_4SO_3M$;

R is H or C_1-C_6 alkyl;

R' is H or C_1-C_6 alkyl;

M is a metal ion; and

m is 2-8 and p is 2-100,

and wherein said composition is substantially free of any surfactant containing a perfluoroalkyl group containing more than 6 carbon atoms, wherein the weight average molecular weight of said surfactant is 750-7500.