Claims:

1. A multiphase system for removing photoresists from surfaces comprising two immiscible liquids, one of the liquids being water, and the other of the two liquids being a water-insoluble substance having a solubility of less than 4 g/L in water, further comprising one or more amphiphiles and additionally containing at least one surfactant and optionally additives and/or auxiliary materials, characterized in that the multiphase system has a turbidity value greater than 0 to less than or equal to 200 NTU.

2. The multiphase system according to claim 1, characterized in that the surfactant is a cationic, anionic, nonionic, or amphoteric surfactant.

3. The multiphase system according to one of the preceding claims, characterized in that the water-insoluble substance is selected from the group comprising alkanes, cycloalkanes, aromatics, long-chain alkanoic acid esters, esters of di- or tricarboxylic acids, terpenes, or the mixtures thereof.

4. The multiphase system according to one of the preceding claims, characterized in that at least one of the amphiphiles is selected from:

   a) diols of formula I:

   $R_1R_2COH\text{-}(CH_2)_n\text{-}COHR_1R_2$ [formula I]

   where

   n may be 0, 1, 2, 3, or 4,

   R_1 and R_2 in each case are independently hydrogen or an unbranched or branched C_l-C_3 alkyl, with the condition that when n = 0, R_1 cannot be hydrogen, and the diol is not 2-methyl-2,4-pentanediol;

   or is selected from 1,3-propanediol, 1,3-butanediol, 1,4-butanediol,

1,5-pentanediol, 1,6-hexanediol, 2,3-butanediol, 2,4-pentanediol, or 2,5-dimethyl-2,5-hexanediol.

b) acetoacetates of formula II:

$C(R_3)_3$-CO-CH_2-CO-O-R_4 [formula II]

where

R_3 in each case is independently hydrogen or a C_1 to C_2 alkyl, and R_4 is a branched or unbranched C_1 to C_4 alkyl;

or

acetoacetates of formula III:

CH_3-CO-CH_2-CO-O-R_5 [formula III]

where R_5 is a C_1 to C_4 alkyl;

or is selected from ethyl acetoacetate, isopropyl acetoacetate, methyl acetoacetate, n-butyl acetoacetate, n-propyl acetoacetate, or *tert*-butyl acetoacetate.

c) diones of formula IV:

CH_3-$(CH_2)_p$-CO-$(CH_2)_q$-CO-$(CH_2)_r$-CH_3 [formula IV]

where

p, q, r may independently be 0, 1, or 2, with the condition that when the sum of p, q, and r = 2, the compound according to formula IV may also be cyclic (cyclohexanedione);

or is selected from 2,3-butanedione (diacetyl), 2,4-pentanedione (acetylacetone), 3,4-hexanedione, 2,5-hexanedione, 2,3-pentanedione, 2,3-hexanedione, 1,4-cyclohexanedione, or 1,3-cyclohexanedione.

d) esters of formula V:

R_6-CO-O-R_7 [formula V]

where

R_6 is a ring bond to R_7, CH_3, or $COCH_3$ and

R_7 is a $(CH_2)_2$-O- ring bond to R^6 or a $(CH_2)_2$-O-$(CH_2)_3$-CH_3, CH_2-CH_3, or CH_2-$CH(CH_3)$-O- ring bond to R_6;

or is selected from (1-methoxy-2-propyl) acetate, (2-butoxyethyl) acetate, ethylene carbonate, ethyl pyruvate (2-oxopropionic acid ethyl ester), or propylene carbonate.

e) maleic or fumaric acid amides of formula VI:

R_8-HN-CO-C=C-CO-O-R_9 [formula VI]

where

R_8 is hydrogen, a branched or unbranched C_l–C_4 alkyl, or a branched or unbranched, linear or cyclic C_l–C_6 alkyl, wherein the C_l–C_6 alkyl is substituted with one or more groups selected from OH, NH_2, COOH, CO, SO_3H, $OP(OH)_2$, and R_9 is hydrogen or a branched or unbranched C_l–C_4 alkyl;

or is selected from the following maleic acid amides and the methyl, ethyl, propyl, and butyl esters thereof: *N*-methyl maleamide; *N*-ethyl maleamide; *N*-(n-propyl) maleamide; *N*-(isopropyl) maleamide; *N*-(n-butyl) maleamide; *N*-(isobutyl maleamide); *N*-(*tert*-butyl maleamide), and the corresponding fumaric acid amides and the methyl, ethyl, propyl, and butyl esters thereof.

f) acids and the ammonium salts and amine salts thereof, and the amides thereof, in particular of cinnamic acid and cinnamic acid salts, and

g) 2,2-dimethoxypropane, pyruvic acid aldehyde-1,1-dimethylacetal, diacetone alcohol (2-methyl-2-pentanol-4-one), 2-butanol, 2-acetyl-gamma-butyrolactone, 3-amino-1*H*-1,2,4-triazole, gamma-butyrolactone, nicotinamide, ascorbic acid, *N*-acetylamino acids, in particular *N*-acetylglycine, -alanine, -cysteine, -valine, or -arginine, triethyl phosphate,

n-butyl acetate, dimethylsulfoxide, or 2,2,2-trifluoroethanol.

5. The multiphase system according to one of the preceding claims, characterized in that the amphiphile is selected from acetoacetates of formula III:

CH_3-CO-CH_2-CO-O-R_5 [formula III]

where

R_5 is a C_1 to C_4 alkyl.

6. Use of a multiphase system according to one of claims 1 to 5 for removing photoresists from surfaces.

7. The use according to claim 6, wherein the surface is a nonmetallic surface, preferably a silicon or glass wafer and/or a metal surface thereon, preferably copper or aluminum.

8. The use according to claim 6 or 7, wherein the photoresist is a crosslinked photoresist.

9. The use according to one of claims 6 to 8, wherein a metal layer is applied to the photoresist.

10. The use according to claim 9, wherein the metal layer present on the photoresist is stripped using the multiphase system.

11. The use according to claim 9 or 10, wherein the metal layer remains on the metal surface.

12. A method for removing photoresist coatings from surfaces, wherein a composition according to one of claims 1 to 6 is used.

13. The method according to claim 12, wherein the surface is a metal surface, and preferably is a silicon wafer.

14. The method according to claim 12 or 13, wherein the photoresist is a crosslinked photoresist.

15. The method according to one of claims 12 to 14, wherein a metal layer is applied to the photoresist.

16. The method according to claim 15, wherein the metal layer present on the photoresist is stripped using the multiphase system.

17. The method according to claim 15 or 16, wherein the metal layer remains on the metal surface.

18. The method according to one of claims 12 to 17, wherein the multiphase system is applied to the surface to be treated and acts for a period of 30 seconds to 5 hours.

19. The method according to claim 18, wherein the multiphase system is removed.