[Claims]

1. A method of producing a 3D non-volatile memory cell, which comprises etching silicon nitride using a silicon nitride etching liquid composition,
wherein the etching liquid composition comprises phosphoric acid, one or more kinds of silane coupling agents and water, and not comprising ammonium ions, and
wherein the silane coupling agent is selected from the group consisting of 3-aminopropyltrimethoxysilane, 3-aminopropyltriethoxysilane, 3-(2-aminoethylamino)propyltrimethoxysilane, 3-(2-aminoethylamino)propyltriethoxysilane, trimethoxy[3-(methylamino)propyl]silane, [3-(N,N-dimethylamino)propyl]trimethoxysilane, trimethoxy[3-(phenylamino)propyl]silane, N-[2-(N-vinylbenzylamino)ethyl]-3-aminopropyltrimethoxysilane, N-[8-(trimethoxysilyl)octyl]ethane-1,2-diamine, N-[3-(trimethoxysilyl)propyl]-1-butaneamine, [3-(diethylamino)propyl]trimethoxysilane, 3-[(1,3-dimethylbutylidene)amino]propyltriethoxysilane, (3-mercaptopropyl)trimethoxysilane, (3-mercaptopropyl)triethoxysilane and N,N-bis[(diphenylphosphino)methyl]-3-(triethoxysilyl)propylamine.

2. The method according to claim 1, wherein the etching liquid composition comprises 60 to 95 wt% of phosphoric acid and 0.01 to 10 wt% of a silane coupling agent.

3. The method according to any one of claim 1 or 2, wherein the etching liquid composition further comprises one or more kinds of water soluble polar organic solvents.

4. The method according to claim 3, wherein the water-soluble polar organic solvent is selected from the group

consisting of methanol, ethanol and acetone.

5. The method according to any one of claims 1 to 4, wherein the etching liquid composition further comprises an inorganic silicate.

6. The method according to claim 5, wherein the inorganic silicate is sodium silicate or potassium silicate.