WHAT IS CLAIMED IS:

1. A polishing slurry composition, comprising:

colloidal silica abrasive particles;

a metal oxide monomolecular complexing agent;

an oxidizer; and

a pH adjusting agent, a water-soluble polymer, or both;

wherein the metal oxide monomolecular complexing agent is an acidic compound having 2 to 5 carbon atoms, and includes at least one functional group selected from the group consisting of a hydroxyl group (—OH), a carbonyl group (C═O), and carboxylic acid (—COOH),

wherein the number of each of the at least one functional group is greater than or equal to 2,

wherein an amount of the water-soluble polymer is 1 ppm to 50 ppm,

wherein the water-soluble polymer includes at least one selected from the group consisting of polyacrylic acid, polymethacrylic acid, polyethylene glycol, and polystyrene sulfonic acid.

2. The polishing slurry composition of claim 1, wherein the colloidal silica abrasive particles are included in the slurry composition in an amount of 0.0001 parts by weight to 20 parts by weight.

3. The polishing slurry composition of claim 1, wherein the colloidal silica abrasive particles include particles with a single size of 10 nm to 300 nm or mixed particles with at least two different sizes of 10 nm to 300 nm.

4. The polishing slurry composition of claim 1, wherein the colloidal silica abrasive particles include particles with a first size of 10 nm to 150 nm and a second size of

150 nm to 300 nm.

5. The polishing slurry composition of claim 1, wherein the metal oxide monomolecular complexing agent is included in the slurry composition in an amount of 0.00001 parts by weight to 10 parts by weight.

6. The polishing slurry composition of claim 1, wherein the metal oxide monomolecular complexing agent includes at least one selected from the group consisting of glyoxylic acid, citric acid, malic acid, maleic acid, malonic acid, oxalic acid, succinic acid, lactic acid, tartaric acid, adipic acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, fumaric acid, acetic acid, butyric acid, capric acid, caproic acid, caprylic acid, glutaric acid, glycolic acid, formic acid, lauric acid, myristic acid, palmitic acid, phthalic acid, propionic acid, pyruvic acid, stearic acid, and valeric acid.

7. The polishing slurry composition of claim 1, wherein the metal oxide monomolecular complexing agent has a pKa greater than 1.0 and less than or equal to 4.5.

8. The polishing slurry composition of claim 1, wherein an amount of the oxidizer is 0.5 % to 5 % of a total amount of the slurry composition.

9. The polishing slurry composition of claim 1, wherein the oxidizer includes at least one selected from the group consisting of hydrogen peroxide, urea hydrogen peroxide, urea, percarbonate, periodic acid, periodate, perchloric acid, perchlorate, perbromic acid, perbromate, perboric acid, perborate, permanganic acid, permanganate, persulfate, bromate, chlorate, chlorite, chromate, iodate, iodic acid, ammonium peroxodisulfate, benzoyl peroxide, calcium peroxide, barium peroxide, sodium peroxide, and carbamide peroxide.

10. The polishing slurry composition of claim 1, wherein the pH adjusting agent includes an acidic substance or a basic substance,

the acidic substance includes at least one selected from the group consisting of nitric acid, hydrochloric acid, phosphoric acid, sulfuric acid, hydrofluoric acid, bromic acid, iodic acid, and salts thereof, and

the basic substance includes at least one selected from the group consisting of ammonium methyl propanol (AMP), tetra methyl ammonium hydroxide (TMAH), ammonium hydroxide, potassium hydroxide, sodium hydroxide, magnesium hydroxide, rubidium hydroxide, cesium hydroxide, sodium bicarbonate, sodium carbonate, imidazole, and salts thereof.

11. The polishing slurry composition of claim 1, wherein the polishing slurry composition is applied to a polishing process of a semiconductor device, a display device, or both.

12. The polishing slurry composition of claim 1,

wherein the polishing slurry composition is applied to polishing of a thin film including a metal film or a metal oxide film,

wherein the metal film and the metal oxide film each include at least one selected from the group consisting of Indium (In), tin (Sn), silicon (Si), titanium (Ti), vanadium (V), gadolinium (Gd), gallium (Ga), manganese (Mn), iron (Fe), cobalt (Co), copper (Cu), zinc (Zn), zirconium (Zr), hafnium (Hf), aluminum (Al), niobium (Nb), nickel (Ni), chromium (Cr), molybdenum (Mo), tantalum (Ta), ruthenium (Ru), tungsten (W), neodymium (Nd), rubidium (Rb), gold (Au), and platinum (Pt).

13. The polishing slurry composition of claim 1,

wherein the polishing slurry composition is applied to polishing of a thin film including an inorganic oxide film,

wherein the inorganic oxide film includes at least one selected from the group consisting of fluorine doped tin oxide (FTO, SnO_2 : F), indium tin oxide (ITO), indium zinc oxide (IZO), indium gallium zinc oxide (IGZO), Al-doped ZnO (AZO), aluminum gallium zinc oxide (AGZO), indium zinc tin oxide (IZTO), indium aluminum zinc oxide (IAZO), indium gallium tin oxide (IGTO), antimony tin oxide (ATO), gallium zinc oxide (GZO), IZO nitride (IZON), SnO_2, ZnO, IrOx, RuOx, and NiO.

14. The polishing slurry composition of claim 1, wherein a target film is polished using the polishing slurry composition at a speed of greater than or equal to 100 Å/min.

15. The polishing slurry composition of claim 1, wherein a degree of planarization of a surface of a target film after the target film is polished using the slurry composition is less than or equal to 5 %.

16. The polishing slurry composition of claim 1, wherein a transparency of a device after a target film is polished using the slurry composition increases by 5 % or more when compared to that before the target film is polished.