CLAIMS

1. A polishing composition for eliminating a protrusion around a laser mark on a laser mark-provided wafer, the polishing composition comprising a water-soluble compound, a chelating agent, and metal oxide particles, and having a pH of 7 to 12,

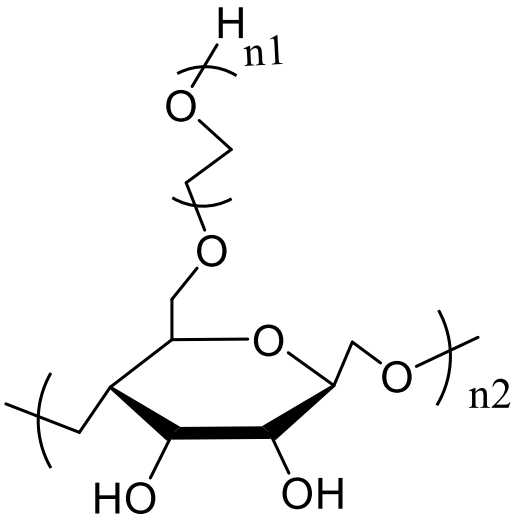
wherein the water-soluble compound has a hydrophobic moiety and a hydrophilic moiety; the hydrophilic moiety has, on an end or side chain thereof, a hydroxyl group and a hydroxyalkyl group, an acyloxy group, a carboxylic acid group, a carboxylic acid salt group, a sulfonic acid group, or a sulfonic acid salt group; the water-soluble compound is contained in an amount of 5 to 700 ppm in the polishing composition,

wherein the metal oxide particles are silica particles having an average primary particle diameter of 5 to 100 nm,

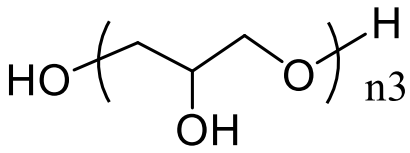
and wherein the chelating agent is an aminocarboxylic acid chelating agent; the aminocarboxylic acid chelating agent is contained in an amount of 0.005 to 1.0% by mass relative to the entire mass of the polishing composition.

2. The polishing composition according to claim 1, wherein the hydrophobic moiety of the water-soluble compound has a glucose structure, an alkylene group, an alkylene oxide group, or a repeating unit of any of these.

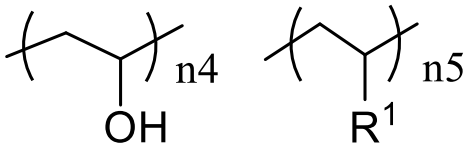
3. ~~The polishing composition according to any one of claims 1 to 2~~A polishing composition for eliminating a protrusion around a laser mark on a laser mark-provided wafer, the polishing composition comprising a water-soluble compound, a chelating agent, and metal oxide particles, and having a pH of 7 to 12, wherein the water-soluble compound is a compound having a unit structure of the following Formula (1), (2), or (3):



Formula (1)



Formula (2)



Formula (3)

Formula (3-1) Formula (3-2)

~~(~~wherein n1 is an integer of 1 to 5; n2 is an integer of 100 to 10,000; n3 is an integer of 1 to 30; R^1 is a $-OCOCH_3$ group, a -COOH group, a -COOM group, a $-SO_3H$ group, or a $-SO_3M$ group; M is Na, K, or NH_4; and n4 + n5, which is the sum of the number n4 of unit structures of Formula (3-1) and the number n5 of unit structures of Formula (3-2), is an integer of 100 to 10,000~~),~~

wherein the water-soluble compound is contained in an amount of 5 to 700 ppm in the polishing composition,

wherein the metal oxide particles are silica particles having an average primary particle diameter of 5 to 100 nm,

and wherein the chelating agent is an aminocarboxylic acid chelating agent; the aminocarboxylic acid chelating agent is contained in an amount of 0.005 to 1.0% by mass relative to the entire mass of the polishing composition.

4. The polishing composition according to any one of claims 1 to 3, wherein the aminocarboxylic acid chelating agent is ethylenediaminetetraacetic acid, nitrilotriacetic acid, diethylenetriaminepentaacetic acid, hydroxyethylethylenediaminetriacetic acid, triethylenetetraminehexaacetic acid, 1,3-propanediaminetetraacetic acid, 1,3-diamine-2-hydroxypropanetetraacetic acid, hydroxyethyliminodiacetic acid, dihydroxyethylglycine, glycol ether diaminetetraacetic acid, dicarboxymethylglutamic acid, or ethylenediamine-N,N'-disuccinic acid.

5. The polishing composition according to any one of claims 1 to 4, wherein the polishing composition further comprises, as an alkaline component, ammonium hydroxide, primary ammonium hydroxide, secondary ammonium hydroxide, tertiary ammonium hydroxide, quaternary ammonium hydroxide, lithium carbonate, sodium carbonate, potassium carbonate, lithium hydrogen carbonate, sodium hydrogen carbonate, potassium hydrogen carbonate, sodium hydroxide, or potassium hydroxide.

6. A wafer polishing method comprising a step of polishing a protrusion around a laser mark on a laser mark-provided wafer by using the polishing composition according to any one of claims 1 to 5.

7. A wafer polishing method comprising a step of preliminarily polishing a laser mark-provided wafer, and a step of polishing a protrusion around a laser mark on the laser mark-provided wafer by using the polishing composition according to any one of claims 1 to 5.

8. The wafer polishing method according to claim 6 or 7, wherein the protrusion polishing step is a step of polishing a laser-mark-around protrusion having a height of 50 nm to 500 nm as measured from a horizontal plane of the surface of the laser mark-provided wafer so that the protrusion has a height of 30 nm to -10 nm as measured from the horizontal plane.