CLAIMS

1. A polishing pad, comprising a polishing layer, wherein the polishing layer includes a plurality of pores, and

the pores have a value of 0.5 to 1 according to the following Equation 1 and 2:

and the result of calculating the standard deviation of D10, D20, D30, D40, D50, D60, D70, D80 and D90 values, which are the cumulative volume diameter values of pores, may be 2 to 9:

[Equation 1]

$$\frac{D10}{D50}$$

[Equation 2]

$$\frac{D50}{D90}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores on 50% cumulative volume distribution, and

D90 is a diameter of pores on 90% cumulative volume distribution.

2. The polishing pad of claim 1, wherein the pores formed in the polishing layer have a D50 of 15 to 65 μm.

3. The polishing pad of claim 1, wherein the polishing layer has a real contact area of 0.02 to 0.05 mm^2 with a semiconductor substrate.

4. The polishing pad of claim 1, wherein the pores have a value of 0.5 to 1.5 according to the following Equation 3:

[Equation 3]

$$\frac{(D90-D50)}{(D50-D10)}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores in 50% cumulative volume distribution, and

D90 is a diameter of pores in 90% cumulative volume distribution.

5. The polishing pad of claim 1, wherein the polishing layer includes a shell derived from an unexpanded solid-phase blowing agent, and

the shell is one or more selected from the group consisting of a vinylidene chloride-based copolymer, an acrylonitrile-based copolymer, a methacrylonitrile-based copolymer and an acryl-based copolymer.

6. A method of manufacturing a polishing pad, the method comprising:

i) preparing a prepolymer composition;

ii) preparing a composition for manufacturing a polishing layer, containing the prepolymer composition, a blowing agent and a curing agent; and

iii) curing the composition for manufacturing a polishing layer to prepare a polishing layer,

wherein the polishing layer includes a plurality of pores, and

the pores have a value of 0.5 to 1 according to the following Equation 1 and 2:

and the result of calculating the standard deviation of D10, D20, D30, D40, D50, D60, D70, D80 and D90 values, which are the cumulative volume diameter values of pores, may be 2 to 9:

[Equation 1]

$$\frac{D10}{D50}$$

[Equation 2]

$$\frac{D50}{D90}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores on 50% cumulative volume distribution, and

D90 is a diameter of pores on 90% cumulative volume distribution.

7. The method of claim 6, wherein the pores have a value of 0.5 to 1.5 according to the following Equation 3:

[Equation 3]

$$\frac{(D90-D50)}{(D50-D10)}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores in 50% cumulative volume distribution, and

D90 is a diameter of pores in 90% cumulative volume distribution.

8. The method of claim 6, wherein

in step iii), the composition for manufacturing a polishing layer is injected into a preheated mold and cured, and

the preheating temperature of the mold is 50 to 150°C.

9. A method of manufacturing a semiconductor device, the method comprising:

1) providing a polishing pad including a polishing layer; and

2) polishing the semiconductor substrate while rotating the semiconductor substrate and the polishing layer relative to each other so that a polished surface of the semiconductor substrate is in contact with the polishing surface of the polishing layer,

wherein the polishing layer includes a plurality of pores, and

the pores have a value of 0.5 to 1 according to the following Equation 1 and 2:

and the result of calculating the standard deviation of D10, D20, D30, D40, D50, D60, D70, D80 and D90 values, which are the cumulative volume diameter values of pores, may be

2 to 9:

[Equation 1]

$$\frac{D10}{D50}$$

[Equation 2]

$$\frac{D50}{D90}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores on 50% cumulative volume distribution, and

D90 is a diameter of pores on 90% cumulative volume distribution.

10. The method of claim 9, wherein the pores have a value of 0.5 to 1.5 according to the following Equation 3:

[Equation 3]

$$\frac{(D90-D50)}{(D50-D10)}$$

wherein

D10 is a diameter of pores in 10% cumulative volume distribution,

D50 is a diameter of pores in 50% cumulative volume distribution, and

D90 is a diameter of pores in 90% cumulative volume distribution.