[CLAIMS]

[Claim 1] A polyurethane for polishing layers, comprising

a thermoplastic polyurethane that is a reaction product of a polyurethane raw material including a polymer diol, an organic diisocyanate, and a chain extender,

wherein the chain extender contains 50 mass% or more of a first chain extender including a straight-chain carbon backbone having 7 to 12 carbon atoms, and

wherein the polyurethane has at least one endothermic peak in a range of 100 to 160°C in a DSC curve as measured by differential scanning calorimetry.

[Claim 2] The polyurethane for polishing layers according to claim 1,

wherein the chain extender contains 100 mass% of the first chain extender.

[Claim 3] The polyurethane for polishing layers according to claim 1 or 2,

wherein the chain extender includes only a non-cyclic compound.

[Claim 4] The polyurethane for polishing layers according to any one of claims 1 to 3,

wherein the first chain extender is at least one

compound selected from the group consisting of 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 2-methyl-1,8-octanediol, 1,10-decanediol, and 1,12-dodecandiol.

[Claim 5] The polyurethane for polishing layers according to any one of claims 1 to 4,

wherein the polyurethane has at least one endothermic peak in a range of 100 to 154°C in a DSC curve as measured by differential scanning calorimetry.

[Claim 6] The polyurethane for polishing layers according to any one of claims 1 to 4,

wherein the polyurethane has at least two endothermic peaks in a range of 100 to 160°C in a DSC curve as measured by differential scanning calorimetry.

[Claim 7] The polyurethane for polishing layers according to claim 5 or 6,

wherein the endothermic peak or peaks have a total amount of a crystallization enthalpy (ΔH) of 10 J/g or more.

[Claim 8] The polyurethane for polishing layers according to any one of claims 1 to 7,

wherein the polymer diol has a number-average molecular weight of 600 to 1400, and contains 4.0 to 6.0 mass% of nitrogen derived from the organic diisocyanate.

[Claim 9] The polyurethane for polishing layers according to any one of claims 1 to 8,

wherein the polyurethane, in a form of a sheet having a thickness of 0.5 mm, has a laser transmittance for a laser wavelength of 660 nm, of 70% or more.

[Claim 10]The polyurethane for polishing layers according to any one of claims 1 to 9,

wherein the polyurethane, in a form of a sheet having a thickness of 0.3 mm, has a storage modulus retention when swollen to saturation with water, of 55% or more, as calculated by the following formula (1):

$$A/B \times 100 \quad (1)$$

(A represents a storage modulus at 21°C after swollen to saturation with warm water at 50°C, and B represents a storage modulus at 21°C when not swollen with water).

[Claim 11]The polyurethane for polishing layers according to any one of claims 1 to 10,

wherein the polyurethane, in a form of a sheet having a thickness of 0.3 mm, has a ratio (E'_{21}/E'_{80}) between a storage modulus E'_{21} at 21°C and a storage modulus E'_{80} at 80°C , of 10 or less.

[Claim 12]The polyurethane for polishing layers according to any one of claims 1 to 11,

wherein the polyurethane, in a form of a sheet having a thickness of 2 mm, has a JIS-D hardness of 50 to 70.

[Claim 13]A polishing layer comprising a molded body of the polyurethane for polishing layers according to any one of claims 1 to 12.

[Claim 14]The polishing layer according to claim 13,

wherein the polishing layer comprises a non-foamed molded body.

[Claim 15]A polishing pad comprising the polishing layer according to claim 13 or 14.