[0016]

In surface coating of a contact lens with an ionic polymer as mentioned in Patent Literatures 5 to 7, performances such as surface hydrophilicity were still insufficient.

[0017]

In surface coating of a medical device as mentioned in Patent Literature 8, performances such as surface hydrophilicity were still insufficient.

[0018]

The present disclosure has been made in view of aforementioned problems of prior art. Thus, it is an object of the present disclosure to provide a medical device whose surface is hydrophilized, excellent in durability and a method for simply producing the same.

[Solution to Problem]

[0019]

To achieve the above object, the present disclosure has the following structures.

[0020]

In an aspect, there is provided a medical device including a substrate and a hydrophilic polymer layer formed on at least a part of the substrate, which satisfies the following conditions (a) to (d):

(a) a polymer constituting the hydrophilic polymer layer is a hydrophilic polymer having an acidic group;

(b) the hydrophilic polymer layer has a thickness of 1 nm or more and less than 100 nm;

(c) a number ratio of basic group/acidic group of the hydrophilic polymer layer is 0.2 or less; and

(d) a liquid film retention time at 40 minutes after ultrasonic

cleaning in a phosphate buffer solution is 15 seconds or more.

In another aspect, there is provided a method for manufacturing a medical device, the method including: a step of disposing the substrate in a solution having an initial pH of 2.0 or higher and 6.0 or lower and heating the solution, wherein the solution contains the hydrophilic polymer and an acid.

[Advantageous Effects]

[0021]

According to the present disclosure, unlike the prior art, it is possible to obtain a medical device imparted with hydrophilicity on a surface, excellent in durability. Applicable substrate is not limited to a hydrous hydrogel and a silicone hydrogel. These medical devices can be obtained by a simple method.

[Description of Embodiments]

[0022]

The present invention relates to a medical device including a substrate and a hydrophilic polymer layer formed on at least a part of the substrate, which satisfies the following conditions (a) to (d):

(a) a polymer constituting the hydrophilic polymer layer is a hydrophilic polymer having an acidic group;

(b) the hydrophilic polymer layer has a thickness of 1 nm or more and less than 100 nm;

(c) a number ratio of basic group/acidic group of the hydrophilic polymer layer is 0.2 or less; and

(d) a liquid film retention time at 40 minutes after ultrasonic cleaning in a phosphate buffer solution is 15 seconds or more.

The medical device of the present invention may have a lens shape and is preferably an ophthalmic lens. Specific examples