characteristics necessary for ALL-PE base materials include stiffness. High-density polyethylene (HDPE) is suitable as a resin from the viewpoint of stiffness, but HDPE has a problem of low luster. In addition, stretch forming is often performed for stiffness improvement, but there is another problem in that neck-in (width drop) during stretching narrows the width of a film that can be collected and decreases productivity.

Summary

Technical Problem

[0004]

In view of the above-described conventional techniques, an object of the present disclosure is to provide a film that has excellent stiffness and can be used as a base material for packaging materials having excellent luster and to mitigate neck-in.

Solution to Problem

[0005]

As a result of intensive studies in view of the above-described problems, the present inventors found that a stretched film composed of a polyethylene-based resin composition having specific physical properties is capable of

solving the above-described problems and completed the present disclosure.

[0006]

A stretched film of the present disclosure is as follows.

[1]

A stretched film comprising: an ethylene-based polymer satisfying the following requirement (a1) and requirement (a2); and 100 to 2500 ppm of a nucleating agent relative to 100 parts by mass of the ethylene-based polymer:

requirement (a1): a melt flow rate (MFR) measured at 190°C and at a load of 2.16 kg is 0.2 to 10 g/10 min, and

requirement (a2): a density is 940 to 970 kg/m^3.

[2]

The stretched film according to [1], wherein a stretch ratio is twice or more and less than six times.

[3]

The stretched film according to [1] or [2], wherein the ethylene-based polymer has a Mw/Mn of 2 to 15.

[4]

The stretched film according to any one of [1] to [3], wherein the stretched film has gloss of 30% or more, an elastic modulus (MD direction) of 3000 MPa or more, and a tear strength (MD direction) of 8 N/cm or more.

[5]

100 parts by mass of the ethylene-based polymer by melt extrusion forming; and a step of stretching the film:

(a1) a melt flow rate (MFR) measured at 190°C and at a load of 2.16 kg is 0.2 to 10 g/10 min, and

(a2) a density is 940 to 970 kg/m^3.

[0006a]

In an aspect of the present disclosure, there is provided a stretched film comprising:

an ethylene-based polymer satisfying the following requirement (a1) and requirement (a2); and

100 to 2500 ppm of a nucleating agent relative to 100 parts by mass of the ethylene-based polymer:

requirement (a1): a melt flow rate (MFR) measured at 190°C and at a load of 2.16 kg is 0.2 to 10 g/10 min, and

requirement (a2): a density is 940 to 970 kg/m^3.

[0006b]

In another aspect of the present disclosure, there is provided a laminate comprising: the stretched film as disclosed herein.

[0006c]

In a further aspect of the present disclosure, there is provided a packaging material comprising:

the stretched film as disclosed herein or the laminate as disclosed herein.

[0006d]

In another aspect of the present disclosure, there is provided a package being packaged with a packaging material including the stretched film as disclosed herein or the laminate as disclosed herein.

[0006e]

In a further aspect of the present disclosure, there is provided a method for producing the stretched film as disclosed herein, the method comprising:

a step of producing a film containing an ethylene-based polymer satisfying the following requirement (a1) and requirement (a2) and 100 to 2500 ppm of a nucleating agent relative to 100 parts by mass of the ethylene-based polymer by melt extrusion forming; and

a step of stretching the film:

(a1) a melt flow rate (MFR) measured at 190°C and at a load of 2.16 kg is 0.2 to 10 g/10 min, and

(a2) a density is 940 to 970 kg/m^3.

Advantageous Effects of Invention

[0007]

The stretched film of the present invention has an excellent balance among stiffness, low shrinkage, and machine direction tear strength, has excellent luster, can be

suitably used as a recyclable packaging material, and is capable of mitigating neck-in.

Description of Embodiments

[0008]

Hereafter, the present invention will be described in detail.

A stretched film of the present invention contains an ethylene-based homopolymer or a copolymer of ethylene and an α-olefin having 3 to 20 carbon atoms (hereinafter abbreviated as an ethylene-based polymer in some cases).

[0009]

Regarding requirement (a1)