required for the ALL PE base material include, for example, heat resistance. From the viewpoint of heat resistance, high-density polyethylene (HDPE) is suitable as the resin, but the use of HDPE has a problem in that the transparency becomes poor and a white powder that is assumed to be derived from a low-molecular-weight component is generated.

[0004]

Patent Literature 3 discloses an invention regarding a stretched film composed of a polyethylene-based resin composition having specific physical properties as a base material for packaging materials having an excellent balance among rigidity, low shrinkage, and longitudinal tear strength.

Citation List

Patent Literature

[0005]

[Patent Literature 1] JP6716764B

[Patent Literature 2] JP2020-121455A

[Patent Literature 3] WO2022/153893

Summary

Technical Problem

[0006]

A barrier layer may be formed on the surface layer of a packaging material by vapor deposition or coating to impart water vapor or gas barrier properties to the packaging material. But there is a case where the barrier layer may be contaminated by a low-molecular-weight component in a polyethylene while the packaging material is stored in a rolled state, and there is a problem in that the adhesive strength decreases when the packaging material is dry-laminated with other base materials afterwards. In Patent Literature 1 to 3, there is neither description nor suggestion regarding a solution to such a problem.

[0007]

An object of the present disclosure is to provide a film that can be used as a base material of a packaging material having excellent low contamination properties.

Solution to Problem

[0008]

As a result of intensive studies in view of the above problem, the present inventors found that a film containing an ethylene-based polymer having specific physical properties is capable of solving the above problem and completed the present disclosure. Examples of the present disclosure are shown below.

[6] A package comprising the film according to any one of [1] to [3].

[7] A package comprising the laminate according to [4] or [5].

[8] A method for producing the film according to any one of [1] to [3], the method comprising a step of melting a raw material resin containing the ethylene-based polymer.

[0012a]

In an aspect of the present disclosure, there is provided a film comprising an ethylene-based polymer satisfying the following requirements (a1) to (a4):

(a1) a density is 940 to 980 kg/m^3;

(a2) a melt flow rate (MFR) measured at 190°C and a load of 2.16 kg is 0.01 to 10 g/10 min;

(a3) an amount of a low-molecular-weight component is 300 ppm or less; and

(a4) a ratio of a weight average molecular weight (Mw) to a number average molecular weight (Mn) (molecular weight distribution; Mw/Mn) measured by gel permeation chromatography (GPC) is 10 or less.

[0012b]

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

[0012c]

In a further aspect of the present disclosure, there is provided a package comprising the film as disclosed herein.

[0012d]

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

[0012e]

In a further aspect of the present disclosure, there is provided a method for producing the film as disclosed herein, the method comprising a step of melting a raw material resin containing the ethylene-based polymer.

Advantageous Effects of Invention

[0013]

The film of the present invention has excellent low contamination properties and thus can be suitably used as a recyclable packaging material and, furthermore, has excellent elastic modulus (rigidity) and transparency.

Description of Embodiments

[0014]

Hereafter, the present invention will be described in detail.

A film according to the present invention contains an ethylene-based polymer satisfying the following requirements (a1) to (a4).

(a1) The density is 940 to 980 kg/m^3.