DESCRIPTION

Title of Invention:
~~WATER-DISPERSED ADHESIVE COMPOSITION, ADHESIVE LAYER, ADHESIVE SHEET, AND LAMINATE COMPRISING ADHESIVE LAYER OR ADHESIVE SHEET~~

WATER-DISPERSED PRESSURE-SENSITIVE ADHESIVE COMPOSITION, PRESSURE-SENSITIVE ADHESIVE LAYER, PRESSURE-SENSITIVE ADHESIVE SHEET, AND LAMINATE COMPRISING PRESSURE-SENSITIVE ADHESIVE LAYER OR PRESSURE-SENSITIVE ADHESIVE SHEET

Technical Field

[0001]

The present invention relates to a water-dispersed pressure-sensitive adhesive composition which forms a pressure-sensitive adhesive layer having excellent adhesiveness to an adherend surface to which oily matter is adherent. The invention further relates to a pressure-sensitive adhesive layer formed from the water-dispersed pressure-sensitive adhesive composition and to a pressure-sensitive adhesive sheet comprising the pressure-sensitive adhesive layer. The invention furthermore relates to a laminate in which the pressure-sensitive adhesive layer or the pressure-sensitive adhesive sheet is applied to an adherend surface having oily matter adherent thereto.

Background Art

[0002]

Since metals such as iron and copper are prone to rust, rust preventive oils are usually applied to the surfaces of these metals for the purpose of preventing oxidation due to contact with air. Meanwhile, since process oil, cutting oil, machine oil, pressing oil, and the like are used in processing metals, industrial metals for use in motor vehicles, domestic electrical appliances, and building materials frequently have surfaces smeared with such oils.

[0003]

Furthermore, various pressure-sensitive adhesive tapes or pressure-sensitive adhesive sheets are being used in a wide range of industrial fields including motor vehicles, domestic electrical appliances, and building materials in the case where materials are bonded to each other or in the case where protective films, labels, and the

CLAIMS

[Claim 1]

A water-dispersed pressure-sensitive adhesive composition, which comprises:

a (meth)acrylic polymer obtained by polymerizing monomer ingredient(s) including as a main component a (meth)acrylic acid alkyl ester in which the alkyl group has 1-18 carbon atoms,

a rubber ingredient which is incompatible with the (meth)acrylic polymer and which has a degree of swelling of 130% or higher upon immersion for 2 hours in a mineral-oil-based rust preventive oil having a kinetic viscosity at 40°C of 5 mm^2/s, and

a tackifier,

wherein a blending ratio by weight of the (meth)acrylic polymer to the rubber ingredient is from 95/5 to 5/95.

[Claim 2]

The water-dispersed pressure-sensitive adhesive composition according to claim 1, wherein an amount of the tackifier incorporated is 15-50 parts by weight per 100 parts by weight of the sum of the (meth)acrylic polymer and the rubber ingredient.

[Claim 3]

The water-dispersed pressure-sensitive adhesive composition according to claim 1 or claim 2, wherein the tackifier contains at least a tackifier having a softening point of 120°C or higher.

[Claim 4]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 3, wherein the tackifier is a rosin-based resin.

[Claim 5]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 4, wherein the rubber ingredient is at least one member selected from the group consisting of natural rubber, polyisoprene rubber, polybutadiene rubber, and styrene/butadiene rubber.

[Claim 6]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 5, wherein the rubber ingredient, when examined for dynamic viscoelasticity at a shear strain with a frequency of 1 Hz, has a loss-tangent peak temperature of -5°C or lower.

[Claim 7]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 6, wherein the (meth)acrylic polymer is a polymer obtained by copolymerizing monomer ingredients including

(A) 60-99.5% by weight of the (meth)acrylic acid alkyl ester in which the alkyl group has 1-18 carbon atoms,

(B) 0.5-12% by weight of a reactive functional group-containing unsaturated monomer, and

(C) 0-39.5% by weight of an unsaturated monomer which is copolymerizable with said (A) and said (B).

[Claim 8]

The water-dispersed pressure-sensitive adhesive composition according to claim 7, wherein in the (meth)acrylic acid alkyl ester (A), a content rate of a (meth)acrylic acid alkyl ester in which the alkyl group has 7-18 carbon atoms is 10% by weight or higher.

[Claim 9]

The water-dispersed pressure-sensitive adhesive composition according to claims 7 or 8, wherein the functional group of the reactive functional group-containing unsaturated monomer (B) is at least one member selected from the group consisting of a carboxyl group and a hydroxyl group.

[Claim 10]

A pressure-sensitive adhesive layer formed from the water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 9.

[Claim 11]

A pressure-sensitive adhesive sheet which comprises the pressure-sensitive adhesive layer according to claim 10.

[Claim 12]

A laminate in which the pressure-sensitive adhesive layer according to claim 10 or the pressure-sensitive adhesive sheet according to claim 11 is applied to a surface of an adherend having an oily matter adherent to the surface thereof.

[Claim 13]

The laminate according to claim 12, wherein the adherend is a metallic steel plate having an oily matter adherent to a surface thereof.

CLAIMS

[Claim 1]

A water-dispersed pressure-sensitive adhesive composition, which comprises:

a (meth)acrylic polymer obtained by polymerizing monomer ingredient(s) including as a main component a (meth)acrylic acid alkyl ester in which the alkyl group has 1-18 carbon atoms,

a rubber ingredient which is incompatible with the (meth)acrylic polymer and which has a degree of swelling of 130% or higher upon immersion for 2 hours in a mineral-oil-based rust preventive oil having a kinetic viscosity at 40°C of 5 mm^2/s, and

a tackifier,

wherein a blending ratio by weight of the (meth)acrylic polymer to the rubber ingredient is from 95/5 to 5/95, and

wherein the tackifier contains at least a tackifier having a softening point of 120°C or higher.

[Claim 2]

The water-dispersed pressure-sensitive adhesive composition according to claim 1, wherein an amount of the tackifier incorporated is 15-50 parts by weight per 100 parts by weight of the sum of the (meth)acrylic polymer and the rubber ingredient.

[Claim 3]

The water-dispersed pressure-sensitive adhesive composition according to claim 1 or 2, wherein the tackifier is a rosin-based resin.

[Claim 4]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 3, wherein the rubber ingredient is at least one member selected from the group consisting of natural rubber, polyisoprene rubber, polybutadiene rubber, and styrene/butadiene rubber.

[Claim 5]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 4, wherein the rubber ingredient, when examined for dynamic viscoelasticity at a shear strain with a frequency of 1 Hz, has a loss-tangent peak temperature of -5°C or lower.

[Claim 6]

The water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 5, wherein the (meth)acrylic polymer is a polymer obtained by copolymerizing monomer ingredients including

(A) 60-99.5% by weight of the (meth)acrylic acid alkyl ester in which the alkyl group has 1-18 carbon atoms,

(B) 0.5-12% by weight of a reactive functional group-containing unsaturated monomer, and

(C) 0-39.5% by weight of an unsaturated monomer which is copolymerizable with said (A) and said (B).

[Claim 7]

The water-dispersed pressure-sensitive adhesive composition according to claim 6, wherein in the (meth)acrylic acid alkyl ester (A), a content rate of a (meth)acrylic acid alkyl ester in which the alkyl group has 7-18 carbon atoms is 10% by weight or higher.

[Claim 8]

The water-dispersed pressure-sensitive adhesive composition according to claims 6 or 7, wherein the functional group of the reactive functional group-containing unsaturated monomer (B) is at least one member selected from the group consisting of a carboxyl group and a hydroxyl group.

[Claim 9]

A pressure-sensitive adhesive layer formed from the water-dispersed pressure-sensitive adhesive composition according to any one of claims 1 to 8.

[Claim 10]

A pressure-sensitive adhesive sheet which comprises the pressure-sensitive adhesive layer according to claim 9.

[Claim 11]

A laminate in which a pressure-sensitive adhesive layer formed from the water-dispersed pressure-sensitive adhesive composition comprising: a (meth)acrylic polymer obtained by polymerizing monomer ingredient(s) including as a main component a (meth)acrylic acid alkyl ester in which the alkyl group has 1-18 carbon atoms, a rubber ingredient which is incompatible with the (meth)acrylic polymer and which has a degree of swelling of 130% or higher upon immersion for 2 hours in a mineral-oil-based rust preventive oil having a kinetic viscosity at 40°C of 5 mm^2/s, and a tackifier, wherein a blending ratio by weight of the (meth)acrylic polymer to the rubber ingredient is from 95/5 to 5/95, or the pressure-sensitive adhesive sheet comprising the pressure-sensitive adhesive sheet is applied to a surface of an adherend having an oily matter adherent to the surface thereof.

[Claim 12]

The laminate according to claim 11, wherein the adherend is a metallic steel plate having an oily matter adherent to a surface thereof.