PATENT DOCUMENT

[0004] Patent Document 1: WO 2019/171981

SUMMARY

[0005] However, in the above-described technique of Patent Document 1, since a conjugated diene polymer is modified with an acid group-containing compound in the solution which is obtained by dissolving the conjugated diene polymer in an organic solvent, it requires dissolution in the organic solvent and removal of the organic solvent. This has been demanded to be improved from the viewpoint of raising productivity. Also, further lowering of the viscosity has been demanded from the viewpoint of improving handling properties of the latex, although in the above-described technique of Patent Document 1, the viscosity when the solids content is 50 wt% and the viscosity when the solids content is 60 wt% can be reduced to specific ranges.

The present disclosure is completed in view of solving the problems above. An objective of the present disclosure is to provide a highly productive method for producing a modified conjugated diene polymer latex that has excellent handling properties and that can provide a molded film, such as a dip-molded article, having high tensile strength and tear strength.

[0006] As a result of dedicated research to solve the aforementioned objective, the present inventor has found that the problems can be solved by employing a method in which a modified conjugated diene polymer is obtained by contacting a conjugated diene polymer with a radical generator on a condition where the total amount of an organic solvent and water used is a certain amount or less, and then the

modified conjugated diene polymer obtained is emulsified in water. Based on such findings, the present inventor has accomplished the present disclosure.

[0007] In a first aspect, the present disclosure provides a method for producing a modified conjugated diene polymer latex, comprising:

a modification step of obtaining a modified conjugated diene polymer by contacting a conjugated diene polymer with a radical generator; and

an emulsification step of emulsifying the modified conjugated diene polymer in water;

wherein the modification step comprises modifying the conjugated diene polymer on a condition where the total amount of an organic solvent and water used is 20 parts by weight or less with respect to 100 parts by weight of the conjugated diene polymer.

[0008] In the method for producing a modified conjugated diene polymer latex according to the present disclosure, the modification step preferably comprises contacting the conjugated diene copolymer with the radical generator by adding the radical generator to the conjugated diene polymer, and kneading the mixture.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, the modification step preferably comprises contacting the conjugated diene copolymer in a solid form with the radical generator.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, in the emulsification step, the emulsification of the modified conjugated diene polymer in water is preferably performed using alkaline water.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, in the emulsification step, the emulsification of the modified conjugated diene polymer in water is

preferably performed using 0.01 to 5 parts by weight of a surfactant with respect to 100 parts by weight of the modified conjugated diene polymer.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, in the modification step, the modified conjugated diene polymer is preferably obtained by contacting the conjugated diene polymer with the radical generator in the presence of an acid group-containing compound and/or an acid anhydride.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, in the modification step, the acid group-containing compound and/or the acid anhydride is preferably used in the amount of 0.5 to 15 parts by weight with respect to 100 parts by weight of the conjugated diene polymer.

In the method for producing a modified conjugated diene polymer latex according to the present disclosure, the conjugated diene polymer is preferably a synthetic polyisoprene.

[0009] In a second aspect, the present disclosure also provides a method for producing a latex composition comprising steps of: obtaining a modified conjugated diene polymer latex by the method according to the first aspect; and adding a sulfur-based vulcanizing agent to the modified conjugated diene polymer latex.

In a third aspect, the present disclosure further provides a method for producing a dip-molded article, comprising steps of: obtaining a latex composition by the method according to the second aspect; and dip molding the latex composition.

[0010] The present disclosure can provide a highly productive method for producing a modified conjugated diene polymer latex that has excellent handling properties and that can provide a molded film, such as a dip-molded article, having high tensile strength and tear strength.