(3) The total of the area of the peak (A) and the of the peak (B) is 70% or more of the total area of the molecular weight distribution curve.

(4) An absolute value of the difference between the glass transition temperature (Tg(A)) of a conjugated diene polymer in the peak (A) and the glass transition temperature (Tg(B)) of a conjugated diene polymer in the peak (B) is 2°C to 30°C.

RELATED ART DOCUMENTS

PATENT DOCUMENT

[0004] Patent Document 1: WO 2018/147312

SUMMARY

PROBLEM TO BE SOLVED

[0005] The conjugated diene polymer prepared by the technique disclosed in Patent Document 1 has insufficient processability, and the cross-linked rubber prepared therefrom has wear resistance and fuel efficiency which are susceptible to improvement.

[0006] The present disclosure has been made in consideration of the above problems, and an object of the present disclosure is to provide a conjugated diene polymer which has high processability, and can provide a cross-linked rubber having high wear resistance and excellent fuel efficiency. Another object of the present disclosure is to provide a rubber composition, a cross-linked rubber, and a tire prepared from such a conjugated diene polymer.

MEANS FOR SOLVING PROBLEMS

[0007] The present inventors, who have conducted extensive research to achieve the above object, have found that the above object can be achieved by achieving a conjugated diene polymer having a silicon content and an ionic strength index in specific ranges, and have completed the present

disclosure.

[0008] Specifically, in an aspect, the present disclosure provides a conjugated diene polymer containing at least conjugated diene monomer units, wherein the conjugated diene polymer contains 95 weight ppm or more of silicon and has an ionic strength index of 75% or less.

[0009] Preferably, the conjugated diene polymer according to the present disclosure has a molecular weight distribution (Mw/Mn) of 1.5 or more.

Preferably, the conjugated diene polymer according to the present disclosure has a weight average molecular weight (Mw) of 200000 or more. Preferably, the conjugated diene polymer according to the present disclosure contains 150 weight ppm or more of silicon.

Preferably, the conjugated diene polymer according to the present disclosure has an ionic strength index of 0.5 to 60%.

Preferably, the conjugated diene polymer according to the present disclosure has a molecular weight distribution curve where two or more peaks are present.

Preferably, the conjugated diene polymer according to the present disclosure has a terminal modifying group.

[0010] In another aspect, the present disclosure provides a rubber composition comprising the conjugated diene polymer, and a filler.

In other aspects, the present disclosure provides a cross-linked rubber prepared by cross-linking the rubber composition as defined above, and a tire comprising such a cross-linked rubber as defined above.

EFFECTS

[0011] The present disclosure provides a conjugated diene polymer which has high processability and can provide a cross-linked rubber having high wear resistance and excellent fuel efficiency. The present disclosure also provides a rubber composition, a cross-linked rubber, and a tire prepared