

[Abstract]

This surface-treated steel includes surface-treated steel comprising:

a steel sheet;

a plated layer including zinc formed on the steel sheet; and

5 a film formed on the plated layer,

wherein the film has a thickness of 100 nm or more and 1000 nm or less,

wherein the film includes:

an amorphous phase A containing Si, C, O, P, Zn, and V, and one or two or more kinds selected from the group consisting of Ti, Zr, and Al as constituent elements,

10 wherein Zn/Si, which is a peak intensity ratio between Zn and Si, is 1.0 or more, and V/P, which is a mass ratio between V and P, is 0.050 to 1.000 when analysis is performed by EDS; and

an amorphous phase B containing Si, O, and Zn, wherein the amorphous phase B has a Zn/Si ratio of less than 1.0, the Zn/Si ratio is a peak intensity ratio between Zn

15 and Si when analysis is performed by EDS,

a Zn content of the amorphous phase A is 10 mass% or less, and

in a cross section in a thickness direction, a percentage of a length of an interface between the plated layer and the amorphous phase B to a length of an interface between the plated layer and the film is 30% or more.

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FIG. 1