

[Abstract]

A surface-treated steel sheet includes: a base steel sheet; a plated layer formed on the base steel sheet and containing 50 mass% or more of Zn and 0.3 mass% or more of Mg; and a chemical conversion coating formed on the plated layer. The chemical
5 conversion coating contains a silicon compound, P and F, and Mg, an average Si concentration of the chemical conversion coating is 10 mass% or more, the chemical conversion coating includes an F-Mg concentrated layer having an Mg concentration of 1.50 mass% or more and 40.00 mass% or less and an F concentration of 0.50 mass% or more and 5.00 mass% or less in a region in contact with an interface between the
10 chemical conversion coating and the plated layer, a thickness of the F-Mg concentrated layer is 1.0 nm or more, and an average Mg concentration is less than 0.50 mass% and an average F concentration is less than 0.50 mass% in a region of the chemical conversion coating excluding the F-Mg concentrated layer.

15 FIG. 1