CLAIMS

[Claim 1] A hot-dip Al-Zn coated steel sheet comprising a coating, wherein

the coating has a composition containing Al: 45 mass% to 65 mass% and Si: 1.0 mass% to 4.0 mass%, with the balance being Zn and inevitable impurity, and

Ni content in the inevitable impurity is 0.010 mass% or less of the total mass of the coating,

wherein the coating contains Ni compounds resulting from Ni in unavoidable impurities, the major axis length of the Ni compounds is 4.0 μm or less and the number of Ni compounds in a direction parallel to the surface of the base steel sheet is 5 or less per mm.

[Claim 2] The hot-dip Al-Zn coated steel sheet according to claim 1, wherein Al content in the coating is 50 mass% to 60 mass%.

[Claim 3] The hot-dip Al-Zn coated steel sheet according to claim 1 or 2, wherein Co content in the inevitable impurity in the coating is 0.080 mass% or less of the total mass of the coating.

[Claim 4] A method of producing a hot-dip Al-Zn coated steel sheet including a coating, the method comprising:

a hot-dip coating treatment to form the coating, the hot dip coating treatment including immersing a base steel sheet in a coating bath having a composition containing Al: 45 mass% to 65 mass% and Si: 1.0 mass% to 4.0 mass%, with the balance being Zn and inevitable impurity, and

controlling Ni content in the inevitable impurity in the coating bath to be 0.010 mass% or less of the total mass of the coating bath

wherein the coating contains Ni compounds resulting from Ni in unavoidable impurities, the major axis length of the Ni compounds is 4.0 μm or less and the number of Ni compounds in a direction parallel to the surface of the base steel sheet is 5 or less per mm.

[Claim 5] A surface-treated steel sheet comprising the coating according to claim 1 or 2 and a chemical conversion layer formed on the coating, wherein

the chemical conversion layer contains: at least one resin selected from the group consisting of an epoxy resin, a urethane resin, an acrylic resin, an acrylic silicon resin, an alkyd resin, a polyester resin, a polyalkylene resin, an amino resin, and a fluororesin; and at least one metal compound selected from the group consisting of a P compound, a Si compound, a Co compound, a Ni compound, a Zn compound, an Al compound, a Mg compound, a V compound, a Mo compound, a Zr compound, a Ti compound, and a Ca compound.

[Claim 6] A prepainted steel sheet comprising a paint layer formed either directly on the coating according to claim 1 or 2, or on a chemical conversion layer on top of the coating, wherein

the chemical conversion layer contains: a resin component containing (a) an anionic polyurethane resin having an ester bond and (b) an epoxy resin having a bisphenol skeleton, in a total amount of 30 mass% to 50 mass% by 100 mass% of the chemical conversion layer, in which a content ratio of (a) to (b), (a):(b), is in a range from 3:97 to 60:40 by mass; and an inorganic compound containing 2 mass% to 10 mass% of a vanadium compound, 40 mass% to 60 mass% of a zirconium compound, and 0.5 mass% to 5 mass% of a fluorine compound, and

the paint layer includes at least a primer paint layer, the primer paint layer containing: a polyester resin having a urethane bond; and an inorganic compound containing a vanadium compound, a phosphoric acid compound, and a magnesium oxide.