

Title (en)
ECO-FRIENDLY HIGH-SPEED PICKLING PROCESS FOR PRODUCING A LOW-CHROME FERRITE-BASED COLD-ROLLED STAINLESS STEEL SHEET HAVING SUPERIOR SURFACE QUALITY

Title (de)
UMWELTFREUNDLICHES HOCHGESCHWINDIGKEITSBEIZVERFAHREN ZUR HERSTELLUNG EINES CHORMARMEN KALTGEWALZTEN ROSTFREIEN STAHLBLECHS AUF FERRITBASIS MIT HERVORRAGENDER OBERFLÄCHENQUALITÄT

Title (fr)
PROCÉDÉ DE DÉCAPAGE RAPIDE, ÉCOLOGIQUE, DE PRODUCTION DE TÔLE D'ACIER INOXYDABLE À BASE DE FERRITE ET À FAIBLE TENEUR EN CHROME, LAMINÉE À FROID DOTÉ DE QUALITÉ DE SURFACE SUPÉRIEURE

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Abstract (en)

The present invention relates to a method for pickling the surface of a steel sheet at high speed during the manufacturing of a ferrite-based cold-rolled stainless steel sheet that requires good surface qualities. The method for pickling a low-chrome ferrite-based cold-rolled stainless steel sheet at high speed involves pickling a ferrite-based cold-rolled stainless steel sheet which contains 14% or less of chrome and which has undergone a degreasing and annealing process, wherein the method comprises a neutral salt electrolyte treatment including the electrolytic removal of chrome-rich scale from the surface of the steel sheet using an electrolytic solution in which sodium sulfate is used as an electrolyte; a sulfuric acid electrolyte treatment including the electrolytic removal of iron-rich scale using an electrolytic solution in which sulfuric acid is used as an electrolyte; and a mixed acid treatment including immersing the steel sheet in a mixed acid solution containing sulfuric acid, hydrofluoric acid, and hydrogen peroxide, wherein the whole pickling process is completed within 15 to 240 seconds. According to the present invention, the use of nitric acid in pickling a ferrite-based cold-rolled stainless steel sheet can be avoided, thus reducing the burden of installing an NO_x removal facility and a denitrification facility, and furthermore, pickling may be adjusted in terms of the hydrogen peroxide concentration and hydrofluoric acid concentration, thus making the process easy to control and suitable for high-speed production. The quality of the steel sheet having undergone the pickling process of the present invention is improved as compared to that of the steel sheet of existing pickling process, the result being that a high-quality ferrite-based cold-rolled stainless steel sheet may be produced.

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