

Title (en)

Copper strip or plate with brown coating and process for the production

Title (de)

Kupferband oder -blech mit brauner Deckschicht und Verfahren zu seiner Herstellung

Title (fr)

Bande ou plaque en cuivre pourvue d'un revêtement brun et procédé de fabrication

Publication

EP 0751233 B2 20051207 (DE)

Application

EP 96109446 A 19960613

Priority

DE 19523646 A 19950629

Abstract (en)

[origin: EP0751233A1] Copper strip or sheet has a dark brown covering layer consisting of a 1st layer, made of Cu₂O adhering to the base metal, of thickness of 0.05-5 (pref. 0.1-1) microns, and a second layer made of CuO of thickness of 1-100 (pref. 10-50) nm over the 1st layer. In the prodn. of a covering layer on a semi-finished prod. sheet made of Cu, a strip-like Cu semi-finished prod. is heat-treated at 250-750 degrees C for 0.1-5 mins. in a mixed gas atmos. contg. up to 15 vol.% O₂ to form a Cu₂O layer, and then heat-treated under oxidising conditions to form a CuO layer at 200-450 degrees C for 1-30 mins. in a mixed gas atmos. contg. 10-21 vol.% O₂. Alternatively, a strip-like Cu semi-finished prod. is heat treated at 250-750 degrees C for 0.1-5 mins. for 0.1-5 mins. in a mixed gas atmos. contg. 1-21 vol.% O₂, and then treated with an aq. soln. contg. alkaline salt alone or in cpd. with a salt of (in)organic peroxide and oxychloride acids. One surface of the semi-finished prod. is textured before heat treated. Heat treatment is carried out at 450-600 degrees C. The O₂ content in the mixed gas atmos. is 3-10 vol.%. The aq. treating soln. has a pH of 10-14. The strip-like semi-finished prod. is electrolytically treated in the aq. soln., where the prod. is connected as anode, using a current density of 1-20 A/dm². The strip-like semifinished prod. is deformed by up to 40 (pref. 5-7)%.

IPC 1-7

C23C 8/10

IPC 8 full level

C23C 8/10 (2006.01)

CPC (source: EP US)

C23C 8/10 (2013.01 - EP US); **Y10T 428/24975** (2015.01 - EP US); **Y10T 428/265** (2015.01 - EP US)

Citation (opposition)

Opponent :

- US 3152927 A 19641013 - EINAR MATTSSON MALTE KURT, et al
- Journal of the Institute of Metals, October 1960, p. 65-70, Rönquist et al

Designated contracting state (EPC)

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DOCDB simple family (publication)

EP 0751233 A1 19970102; EP 0751233 B1 19990107; EP 0751233 B2 20051207; AT E175450 T1 19990115; CA 2179097 A1 19961230; CA 2179097 C 20010123; DE 19523646 A1 19970102; DE 59601100 D1 19990218; DK 0751233 T3 19990830; DK 0751233 T4 20060418; ES 2128810 T3 19990516; ES 2128810 T5 20060616; GR 3029669 T3 19990630; US 5962116 A 19991005

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