

Title (en)

Process for manufacturing an object made from a steel sheet and enameled in direct mode

Title (de)

Herstellungsverfahren eines Gegenstandes aus Stahlblech, der direkt-Emailliert wird

Title (fr)

Procédé de préparation d'un objet en tôle d'acier émaillé en mode direct

Publication

**EP 0866147 B1 20020410 (FR)**

Application

**EP 98400466 A 19980227**

Priority

FR 9703452 A 19970321

Abstract (en)

[origin: EP0866147A1] Sheet steel is pickled in acid and then given a coating which protects it against corrosion, serves as a lubricating agent during subsequent shaping and is removed by degreasing before nickel-plating and enamelling of the final article. When applied to specific steel sheet 1 mm thick, the coating will withstand 10 cycles of heat and humidity according to DIN50017 without the steel showing any sign of rust. Its lubricating ability is such that a pressed flat bottomed dish 90 mm in diameter, pickled and then coated may be further pressed to a depth of 25 mm by a punch of diameter 50 mm moving at 1.6 mms/sec without rupture up to a force of 65 kN. The coating can be completely removed by immersion in a bath containing 35 g/l sodium metasilicate, 16 g/l trisodic phosphate and 2 g/l nitroacetic acid at 60 degrees C for 3 mins, followed by immersion in water for 1 min and spraying therewith for 0.5 min.

IPC 1-7

**C23D 3/00**

IPC 8 full level

**C23D 3/00** (2006.01)

CPC (source: EP US)

**C23D 3/00** (2013.01 - EP US); **Y10T 29/49986** (2015.01 - EP US)

Designated contracting state (EPC)

AT BE CH DE DK ES FI FR GB GR IE IT LI LU NL PT SE

DOCDB simple family (publication)

**EP 0866147 A1 19980923**; **EP 0866147 B1 20020410**; AT E216000 T1 20020415; CA 2234433 A1 19980921; DE 69804705 D1 20020516; DE 69804705 T2 20021017; DK 0866147 T3 20020729; ES 2173555 T3 20021016; FR 2761082 A1 19980925; FR 2761082 B1 19990430; PT 866147 E 20020830; US 6199263 B1 20010313

DOCDB simple family (application)

**EP 98400466 A 19980227**; AT 98400466 T 19980227; CA 2234433 A 19980319; DE 69804705 T 19980227; DK 98400466 T 19980227; ES 98400466 T 19980227; FR 9703452 A 19970321; PT 98400466 T 19980227; US 4577198 A 19980323