

Title (en)  
TREATMENT DEVICE FOR PICKLING AND PHOSPHATING METAL PARTS

Title (de)  
BEHANDLUNGSVORRICHTUNG ZUM BEIZEN UND PHOSPHATIEREN VON METALLTEILEN

Title (fr)  
DISPOSITIF DE TRAITEMENT POUR LE DÉCAPAGE ET LA PHOSPHATATION DE PIÈCES MÉTALLIQUES

Publication  
**EP 3371343 A1 20180912 (DE)**

Application  
**EP 16793849 A 20161107**

Priority  
• DE 102015014322 A 20151105  
• EP 2016076871 W 20161107

Abstract (en)  
[origin: WO2017077123A1] The invention relates to a treatment device (1) for the single-stage treatment of a metal object (2) to be treated, wherein the treatment comprises at least the pickling and the phosphating of the object (2) to be treated, wherein the treatment device (1) comprises at least the following apparatuses: a treatment container (4) for holding the object (2) to be treated and for holding a flowable treatment substance (6), a pumping apparatus (10) for circulating at least a portion of the treatment substance (6), wherein the treatment substance (6) flows around at least part of the object (2) to be treated, in particular the entire object (2) to be treated, wherein the treatment substance (6) is a phosphorus- or phosphate-containing solution, in particular phosphoric acid, wherein the phosphorus- or phosphate-containing solution consists of water, in particular deionized water, and of a reaction substance, and the reaction substance consists of phosphorus or of a phosphate and at least one additional substance that improves the treatment effect, in particular one or more inhibitors, wherein the fraction of the phosphorus or the phosphate in the reaction substance is between 75 vol% and 94 vol% and preferably between 80 vol% and 90 vol% and especially preferably between 85 vol % and 87 vol%, wherein the reaction substance has no fractions of hydrochloric acid and sulfuric acid and preferably also no fractions of fluorine, chlorine, bromine, iodine, lead, mercury, and selenium and wherein the reaction substance is mixed with water at a specified ratio, wherein the specified ratio lies between a lower limit and an upper limit, wherein the lower limit is defined by a mixture at a ratio of 1 kg of reaction substance to 4 liters of water and the upper limit is defined by a mixture of 1 kg of reaction substance to 8 liters of water, and in particular the mixture has a ratio of 1 kg of reaction substance to 6 liters of water.

IPC 8 full level  
**C23C 22/08** (2006.01); **C23C 22/00** (2006.01); **C23G 1/00** (2006.01); **C23G 1/06** (2006.01); **C23G 3/00** (2006.01)

CPC (source: EP US)  
**C23C 22/00** (2013.01 - EP US); **C23C 22/07** (2013.01 - US); **C23C 22/08** (2013.01 - EP US); **C23G 1/00** (2013.01 - EP US); **C23G 1/06** (2013.01 - EP US); **C23G 3/00** (2013.01 - EP US)

Citation (search report)  
See references of WO 2017077123A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**WO 2017077123 A1 20170511**; CA 3027683 A1 20170511; CN 108350576 A 20180731; CN 108350576 B 20201124; DE 102015014322 A1 20170511; EP 3371343 A1 20180912; EP 3371343 B1 20191030; HK 1256991 A1 20191011; US 10513781 B2 20191224; US 2018312977 A1 20181101; ZA 201802500 B 20181219

DOCDB simple family (application)  
**EP 2016076871 W 20161107**; CA 3027683 A 20161107; CN 201680064691 A 20161107; DE 102015014322 A 20151105; EP 16793849 A 20161107; HK 18115997 A 20181213; US 201615774096 A 20161107; ZA 201802500 A 20180416