

Title (en)  
Fine iron powder containing phosphorus

Title (de)  
Feinteiliges phosphorhaltiges Eisen

Title (fr)  
Poudre fine de fer contenant du phosphore

Publication  
**EP 0861699 A1 19980902 (DE)**

Application  
**EP 98102811 A 19980218**

Priority  
DE 19706524 A 19970219

Abstract (en)  
A process for producing finely divided phosphorus-containing iron involves gaseous phase reaction of iron pentacarbonyl with a phosphorus compound, preferably phosphine. Preferably, the reaction is carried out in the presence of ammonia at above 200 degrees C. Also claimed is a finely divided phosphorus-containing iron which consists of spherical particles with 1-10  $\mu$ m mean particle diameter or of filament aggregates of spheres with 0.2-3  $\mu$ m diameter. Preferably, the iron contains 0.1-50 wt.% P, less than 1 wt.% C, less than 1 wt.% N, less than 0.5 wt.% H and less than 0.1 wt.% total of other impurity elements and is produced by the above process. Further claimed is apparatus for carrying out the above process, including a heated decomposition tube, devices for producing two different temperature zones, for evaporating liquid iron pentacarbonyl and for gas dosing and mixing, and a separator for finely divided phosphorus-containing iron.

Abstract (de)  
Die Erfindung betrifft ein Verfahren zur Herstellung von feinteiligem phosphorhaltigem Eisen durch Umsetzung von Eisenpentacarbonyl mit einer flüchtigen Phosphorverbindung, insbesondere PH<sub>3</sub>, in der Gasphase. Die erhaltenen phosphorhaltigen Eisenpulver und Eisenwhiskers zeichnen sich durch einen besonders niedrigen Gehalt an Fremdelementen aus.

IPC 1-7  
**B22F 9/30**

IPC 8 full level  
**B22F 9/16** (2006.01); **B22F 1/00** (2006.01); **B22F 9/28** (2006.01); **B22F 9/30** (2006.01); **C22C 33/02** (2006.01); **C22C 38/00** (2006.01)

CPC (source: EP US)  
**B22F 9/305** (2013.01 - EP US); **C22C 33/0214** (2013.01 - EP US)

Citation (search report)  
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• [A] DE 819690 C 19511105 - BASF AG  
• [A] GB 1098522 A 19680110 - VITALY GRIGORIEVICH SYRKIN, et al

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US7138043B2; WO0166830A3

Designated contracting state (EPC)  
AT BE CH DE ES FR GB IT LI NL

DOCDB simple family (publication)  
**US 6036742 A 20000314**; AT E225690 T1 20021015; DE 19706524 A1 19980820; DE 59805858 D1 20021114; EP 0861699 A1 19980902; EP 0861699 B1 20021009; ES 2185071 T3 20030416; IL 123236 A0 19980924; IL 123236 A 20001206; JP 4165920 B2 20081015; JP H10298616 A 19981110; KR 100552861 B1 20060421; KR 19980071459 A 19981026; RU 2206431 C2 20030620; TW 415861 B 20001221

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**US 2267498 A 19980212**; AT 98102811 T 19980218; DE 19706524 A 19970219; DE 59805858 T 19980218; EP 98102811 A 19980218; ES 98102811 T 19980218; IL 12323698 A 19980209; JP 3289798 A 19980216; KR 19980004919 A 19980218; RU 98103520 A 19980219; TW 87102117 A 19980216