

Title (en)

IMPROVEMENTS IN OR RELATING TO NICKEL-, COBALT-, AND IRON BASED ALLOYS

Publication

**EP 0006951 B1 19830112 (EN)**

Application

**EP 78900280 A 19790618**

Priority

GB 5059777 A 19771205

Abstract (en)

[origin: WO7900343A1] The oxidation resistance and corrosion resistance of a nickel-, cobalt- or iron-based alloy can be improved by including in the alloy composition a platinum group metal, viz. osmium, iridium, platinum, ruthenium, rhodium, or palladium, and one or more platinum-complementing elements, viz. titanium, scandium, yttrium, lanthanum, hafnium, tantalum, zirconium, niobium and any of the lanthanide elements in balanced proportions. The resultant alloy composition consists of at least 5 weight percent of chromium, from 0 to 3 weight percent of carbon a component X, a component Z, and a balance of one or more of nickel, cobalt and iron together with incidental elements and impurities if any, wherein component X is one or more of (i) at least 2 weight percent in total of one or more of aluminium, titanium, tantalum and niobium; (ii) at least 5 weight percent in total of one or both of tungsten and molybdenum, and (iii) at least 60 weight percent of nickel, and component Z comprises  $m_{up}$  weight percent of one or more platinum group metals together with  $m_{uc}$  weight percent of one or more platinum-complementing metals with  $0.1 \leq m_{up} + m_{uc} \leq 5$  and  $0.3 \leq m_{up}/m_{uc} \leq 20$ . The amount  $m_{up}$  of the platinum group metal is preferably from 50 to 95 percent by weight of the total ( $m_{up} + m_{uc}$ ), and most particularly the amounts of the platinum group metal and the platinum-complementing metal are chosen to be in stoichiometric proportions with reference to intermetallic compounds which may be formed between them. The improved alloys are particularly suited to use for gas turbine engine components.

IPC 1-7

**C22C 19/07**; **C22C 38/18**; **C22C 19/05**

IPC 8 full level

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CPC (source: EP)

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Citation (examination)

- Review of Technological Requirements for High Temperature Materials, R&D Sept. 1976, published for the Commission of the European communities by Joint, Res. Centre Establishment of Petten (The Netherlands)
- GARD Conference Proceedings No 156, page 96 published 1977 Ref. EUR 5623e, Appendie C table c

Cited by

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