

**CPC****COOPERATIVE PATENT CLASSIFICATION****C22F****CHANGING THE PHYSICAL STRUCTURE OF NON-FERROUS METALS AND NON-FERROUS ALLOYS**

(surface treatment of metallic material involving at least one process provided for in class [C23](#) and at least one process covered by this subclass, [C23F 17/00](#))

**Guidance heading:****C22F 1/00** **Changing the physical structure of non-ferrous metals or alloys by heat treatment or by hot or cold working** (apparatus for mechanical working of metal [B21](#) , [B23](#) , [B24](#) )

- C22F 1/002 . {by rapid cooling or quenching; cooling agents used therefor }
- C22F 1/004 . {Heat treatment in fluid bed }
- C22F 1/006 . {Resulting in heat recoverable alloys with a memory effect }
- C22F 1/008 . {Using a protective surface layer }
- C22F 1/02 . in inert or controlled atmosphere or vacuum (adjusting the composition of the atmosphere [C21D 1/76](#))
- C22F 1/04 . of aluminium or alloys based thereon
- C22F 1/043 . . of alloys with silicon as the next major constituent
- C22F 1/047 . . of alloys with magnesium as the next major constituent
- C22F 1/05 . . of alloys of the Al-Si-Mg type, i.e. containing silicon and magnesium in approximately equal proportions
- C22F 1/053 . . of alloys with zinc as the next major constituent
- C22F 1/057 . . of alloys with copper as the next major constituent
- C22F 1/06 . of magnesium or alloys based thereon
- C22F 1/08 . of copper or alloys based thereon
- C22F 1/10 . of nickel or cobalt or alloys based thereon
- C22F 1/11 . of chromium or alloys based thereon
- C22F 1/12 . of lead or alloys based thereon
- C22F 1/14 . of noble metals or alloys based thereon
- C22F 1/16 . of other metals or alloys based thereon
- C22F 1/165 . . {of zinc or cadmium or alloys based thereon }
- C22F 1/18 . . high-melting or refractory metals or alloys based thereon
- C22F 1/183 . . . {of titanium or alloys based thereon }

C22F 1/186 . . . {of zirconium or alloys based thereon }

**C22F 3/00** **Changing the physical structure of non-ferrous metals or alloys by special physical methods, e.g. treatment with neutrons**

C22F 3/02 . by solidifying a melt controlled by supersonic waves or electric or magnetic fields