

Title (en)

CHEMICAL SURFACE TREATMENT METHOD OF PISTON RING

Title (de)

CHEMISCHE OBERFLÄCHENBEHANDLUNG EINES KOLBENRINGS

Title (fr)

PROCEDE POUR LE TRAITEMENT CHIMIQUE DE LA SURFACE D'UN SEGMENT DE PISTON

Publication

**EP 1528123 A1 20050504 (EN)**

Application

**EP 02807290 A 20021104**

Priority

- CN 0200783 W 20021104
- CN 02118622 A 20020426

Abstract (en)

[origin: WO03091479A1] Chemical surface treatment method of piston ring for decreasing surface friction force thereof, comprises the steps of placing the piston ring in a vessel, pouring automobile oil into the vessel to soak the piston ring, and raising the oil temperature to 220-250 °C; adding in (regarding the automobile oil and all of the additives totally as 100% wt.) 0.15-0.50% alkali carbonate, 0.15-0.50% alkali nitrite, 0.10-0.30% alkali chloride, 0.50-1.2% alkali nitrate, 0.40-1.1% acid manganous phosphate, 0.30-0.090% rare earth metal powder containing cerium; maintaining the above temperature for 10-24 hours, then stopping heating and letting the oil bath cool down naturally to 50 °C to take out the piston ring. The present invention is suitable for improving properties of the piston rings and cylinders of various engines such as gasoline engines or diesel engines. It can improve work efficiency of cylinder apparently, and can extend the cylinder's service life, save oil consuming, reduce exhaust pollution, thus has excellent industrial prospect.

IPC 1-7

**C23C 22/03**; F02F 5/00; F16J 9/26

IPC 8 full level

**C10M 125/00** (2006.01); **C23C 22/03** (2006.01)

CPC (source: EP US)

**C10M 125/00** (2013.01 - EP); **C23C 22/03** (2013.01 - EP US); **C10N 2010/02** (2013.01 - EP); **C10N 2010/14** (2013.01 - EP US); **C10N 2030/06** (2013.01 - EP); **C10N 2040/25** (2013.01 - EP); **C10N 2080/00** (2013.01 - EP)

Citation (search report)

See references of WO 03091479A1

Cited by

US10105810B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

DOCDB simple family (publication)

**WO 03091479 A1 20031106**; AU 2002367887 A1 20031110; BR 0215727 A 20050222; CN 1156609 C 20040707; CN 1386905 A 20021225; EP 1528123 A1 20050504

DOCDB simple family (application)

**CN 0200783 W 20021104**; AU 2002367887 A 20021104; BR 0215727 A 20021104; CN 02118622 A 20020426; EP 02807290 A 20021104