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(71) Applicant:  
**Material Service Holding S.A.  
2453 Luxembourg (LU)**

(72) Inventor: **Cerutti, Pietro  
Giubiasco (Bellinzona) (CH)**

(74) Representative:  
**De Gregori, Antonella et al  
Ing. Barzano & Zanardo Milano S.p.A.  
Via Borgonuovo 10  
20121 Milano (IT)**

(54) **Process suitable to give a direct protection against the wear corrosion of metallic pieces**

(57) In a process suitable to give a direct protection against the corrosion of metallic pieces, a nitrogen diffusion area is realised on the outer layer with a maximum depth of 0.1mm, and with a nitrogen weight % lower than 2-4%, depending on the steel to be treated. The temperature at which this first phase takes place goes from 480 to 525°C depending from the steel type and the maximum duration is of 10 hours. Then during a second phase, once the nitrogen feeding is stopped, the metallic piece is treated in a gaseous oxidizing environment. Layers of Fe<sub>3</sub>O<sub>4</sub> at 95-99% content are obtained, practically FeO/Fe<sub>2</sub>O<sub>3</sub> oxides free, which are formed at temperatures comprised between 505 and 545°C and which are comprised between 2 and 4µm and containing an oxygen weight % between 25% and 30%. A strong barrier and insulation effect is thereby obtained directly within the steel.

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# EUROPEAN SEARCH REPORT

Application Number  
EP 98 20 3391

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