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[\[PDF \(1427K\)\]](#) [\[References\]](#)**Corrosion behavior of ion implanted nickel-titanium orthodontic wire in fluoride mouth rinse solutions**[Masahiro IJIMA](#)¹⁾, [Toshihiro YUASA](#)¹⁾, [Kazuhiko ENDO](#)²⁾, [Takeshi MUGURUMA](#)¹⁾, [Hiroki OHNO](#)²⁾ and [Itaru MIZOGUCHI](#)¹⁾

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Abstract:

This study investigated the corrosion properties of ion implanted nickel-titanium wire (Neo Sentalloy Ionguard) in artificial saliva and fluoride mouth rinse solutions (Butler F Mouthrinse, Ora-Bliss). Non ion implanted nickel-titanium wire (Neo Sentalloy) was used as control. The anodic corrosion behavior was examined by potentiodynamic polarization measurement. The surfaces of the specimens were examined with SEM. The elemental depth profiles were characterized by XPS. Neo Sentalloy Ionguard in artificial saliva and Butler F Mouthrinse (500 ppm) had a lower current density than Neo Sentalloy. In addition, breakdown potential of Neo Sentalloy Ionguard in Ora-Bliss (900 ppm) was much higher than that of Neo Sentalloy although both wires had similar corrosion potential in Ora-Bliss (450 and 900 ppm). The XPS results for Neo Sentalloy Ionguard suggested that the layers consisted of TiO₂ and TiN were present on the surface and the layers may improve the corrosion properties.

Key words:[Ni-Ti wire](#), [Corrosion](#), [Plasma immersion ion implantation](#)

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