

17-4 Stainless Steel Orthodontic Devices Material and Chemical Characterization

The material and chemical characterization charts show the types of materials used in WCT's orthodontic metal brackets and buccal tubes. The charts identify the main alloy components and trace elements.

1 Materials

- 1.1** Pitts21® PRO Bracket Body & Ligating Member, Pitts21® Brackets, H4 Brackets, BioMIM Mini-Twin Brackets, Phase 1 Eyelets, Buccal Tubes, Lingual Buttons, and APII Class II Appliance.

Table 1

Stainless Steel 17-4PH per ASTM B883 – 24		
Chemical Name	Min. (weight %)	Max. (weight %)
Iron (Fe)	Balance	Balance
Nickel (Ni)	3	5
Chromium (Cr)	15.5	17.5
Carbon (C)	-	0.07
Copper (Cu)	3	5
Silicon (Si)	-	1.0
Manganese (Mn)	-	1.0
Niobium; Tantalum (Nb+Ta)	0.15	0.45
Other	-	1.0

- 1.2** Pitts21® PRO Spring Member

Table 2

Nitinol per ASTM F2063-18		
Chemical Name	Min. (weight %)	Max. (weight %)
Titanium	Balance	Balance
Nickel	54.5	57
Carbon	-	0.04
Cobalt	-	0.05
Copper	-	0.01
Chromium	-	0.01
Hydrogen	-	0.005
Iron	-	0.05
Niobium	-	0.025
Nitrogen	-	0.005
Oxygen	-	0.04

Table 3

Coating "DLC (Diamond-Like Carbon)"

1.3 APII Class II Appliance

- Ligature Tie: Thermolastic polyurethane. (Texin® 285)

1.4 Static Immersion Test Ion Release Values

Table 4

Ion Release	
Element	µg / 20 brackets / 7 days
Ag	-
As	-
Ba	-
Be	-
Bi	-
Cd	-
Co	-
Cr	≤ 50
Cs	-
Cu	≤ 100
Fe	≤ 200
Ga	-
Ge	-
Hf	-
In	-
La	-
Li	-
Mg	-
Mn	-
Mo	-
Nb	≤ 50
Ni	≤ 50
Pb	-
Re	-
Sb	-
Se	-
Sn	-
Sr	-
Ta	-
Te	-
Ti	-
Tl	-
V	-
W	-
Zn	-
Zr	-
Sum	≤ 450

Approved By:
[\(CO-1040\) MR Unsafe - APII, Buttons, Stops, Hooks, Coil Springs, & Preformed Lig Ties](#)

Description
Activating MR Unsafe symbol on labels for APII, Buttons, Stops, Hooks, & Coil Springs.

Justification
MR Unsafe needed on labels. There is an updated MRI warning

Assigned To:	Initiated By:	Priority:	Impact:
Maureen Janssen	Maureen Janssen	Medium	Major

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