

TEST REPORT

Acha Co., Ltd.
Bangkok Head Office
247,249 Tanao Road
Bavornives, Pranakorn
Bangkok, Thailand 10200

Report No.: 331788-1A
Date: 08/15/2023
Order No.:
Page: 1 of 1

Attn: Doriana Orru

Amendment to Report No. 331788-1 (Address updated per customer request).

SAMPLE IDENTIFICATION

Description	Grade
UBNEBIN, 8mm, B04-23	Ti-6Al-4V Gr. 23

TEST RESULTS *

CHEMICAL TESTING (TEST DATE 8/10/2023)

Element	Results	Ti-6Al-4V Gr. 23 Requirements
Aluminum	6.32 %	5.5 – 6.50 %
Vanadium	4.25	3.5 – 4.5
Iron	.12	.25 Max.
Carbon	.012	.08 Max.
Nitrogen	.011	.05 Max.
Oxygen	.08	.13 Max.
Hydrogen	.008	.012 Max.
Titanium	Balance	Balance
UNS Designation	R56401	R56401

* Chemical testing performed in accordance with ASTM E2371-21, E1941-10(2016) (Leco carbon testing), E1409-13 (Leco oxygen and nitrogen), and E1447-09(2016) (Leco hydrogen).

Note: The results conform to the chemistry requirements of ASTM F136-12a.

Approved By: Thomas V. Santini, Staff Metallurgical Engineer



TEST REPORT

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Report No.: 331788-2A
Date: 08/15/2023
Order No.:
Page: 1 of 1

Attn: Doriana Orru

Amendment to Report No. 331788-2 (Address updated per customer request).

SAMPLE IDENTIFICATION

Description	Grade
BN14G, 16mm, B04-23	316L SS

TEST RESULTS *

CHEMICAL TESTING (TEST DATE 07/21/2023)

Element	Results	316L SS Requirements
Carbon	.017 %	.030 % Max.
Manganese	1.03	2.00 Max.
Phosphorus	.035	.045 Max.
Sulfur	<.005	.030 Max.
Silicon	.35	1.00 Max.
Nickel	10.62	10.00 – 14.00
Chromium	17.05	16.00 – 18.00
Molybdenum	2.07	2.00 – 3.00
Copper	.29	--
Nitrogen	.06	--
Iron	Balance	Balance
UNS Designation	R31603	R31603

* Chemical testing performed in accordance with ASTM E1479-16 and E1019-18 (Leco carbon, sulfur, and nitrogen).

Approved By: Thomas V. Santini, Staff Metallurgical Engineer





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REACH_LEAD / CADMIUM TEST (BAO Method 38A)

REPORT

Ref: 305581	Date Work Reported: 23 February 2023	Batch No:
Page: 1 of 2	Date Work Received: 16 February 2023	666
Subject:	REACH Directive (1907/2006) – Determination of Lead & Cadmium.	
Method:	The following procedures (appropriate to sample type) were used to determine the total lead / cadmium content in each component. <ol style="list-style-type: none">1. Acid dissolution (Hot Plate) followed by ICP-OES - Metal components;2. Microwave digestion followed by ICP-OES - Paint and other similar surface coatings;3. Microwave digestion / or Fusion followed by ICP-OES - non-metal components.	
General Requirements	Lead: Entry 63 of annex 17 of REACH Directive (1907/2006):- (Metal/ Non-Metal/ Paint & Others, excludes exempted category) <ol style="list-style-type: none">1. < 500 ppm i.e. less than 0.05%– ‘Compliant (C)’2. ≥ 500 ppm i.e. greater/equal to 0.05% - ‘Non-Compliant (NC)’ Cadmium: Entry 23 of annex 17 of REACH Directive (1907/2006):- Metal/ Plastic/ Paint/ Coatings excludes exempted category <ol style="list-style-type: none">3. <100 ppm i.e. less than 0.01% (Metal / Plastic) - ‘Compliant (C)’4. ≥100 ppm i.e. greater than/equal to 0.01% (Metal / Plastic) - ‘Non- Compliant (NC)’5. <1000 ppm i.e. less than 0.1% (Paint/Coatings) - ‘Compliant (C)’6. ≥1000 ppm i.e. greater than/equal to 0.1% (Paint/Coatings) - ‘Non- Compliant (NC)’	
Remarks	This test criterion represents the addressee’s current policy and is based solely upon the current information available. Both the procedure and assessment criterion may be subject to future change.	

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Ref: 305581	Date Work Reported: 23 February 2023
Page: 2 of 2	Date Work Received: 16 February 2023

RESULTS

(NR = Not Requested, ND=Not Detected, N/A = Not Applicable, C = Compliant, NC = Non-compliant, 1mg/kg= 1ppm)

Comp Ref. (BAO)	Item Description	Component Description	Test Req.	Lead Content (mg/kg)	Lead: C / NC	Cadmium Content (mg/kg)	Cadmium : C / NC	Technique
20a	BNEB Steel	Bar	Pb-Cd	13.65	C	21.70	C	Acid Disso.
21a		End Balls	Pb-Cd	76.89	C	20.59	C	Acid Disso.



M. Francosi BSc
Analytical Chemist



D. Beddow
Chemist Technician

CD 13:27

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EN 12472:2009 / EN1811:2015 - NICKEL RELEASE TEST (Method 20A/20C)

Ref: 310991 - 1	Date work reported: 28/07/2023	Batch No. 318
Page: 1 of 2	Date work received: 14/07/2023	

Method:	Sample(s) & their components listed below have been tested according to procedures based on BS EN 12472:2005 + A1:2009 and BS EN1811 + A1: 2015 (Plated items) or by BS EN1811: 2011 + A1:2015 (Unplated items) as appropriate. Wherever practical, product(s) have been disassembled into their component parts and the nickel release determined for each component. No parts of the product have been 'masked off' during the test, unless specifically instructed by the Customer.
Results: Units:	Results relate only to the specific materials tested. Nickel released in micrograms per square centimetre per week.
Compliant or Non-Compliant criteria:	<p>For <u>items</u> intended to come into direct and prolonged contact with the skin which need to comply with the 0.5 µg/cm²/week limit (Ref Annex A of BS EN1811:2011+A1:2015) - (Based on combined measurement of uncertainty value of 46%):</p> <p>Non-Compliant when nickel release is ≥0.88 µg/cm²/week</p> <p>Compliant when nickel release is < 0.88 µg/cm²/week.</p> <p>For all <u>post assemblies</u> which are inserted into pierced parts of the human body, the post assembly needs to comply with the 0.2 µg/cm²/week limit (Ref Annex A of BS EN1811:2011+ A1:2015) - (Based on combined measurement of uncertainty value of 46%):</p> <p>Non-Compliant when nickel release is ≥0.35 µg/cm²/week.</p> <p>Compliant when nickel release is < 0.35 µg/cm²/week.</p> <p>Note: Sample components marked as 'compliant' will comply with the requirements of entry 27 of Annexe XVII (REACH) with respect to Nickel Release.</p>

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Ref: 310991 - 1	Date work reported: 28/07/2023	Batch No. 318
Page: 2 of 2	Date work received: 14/07/2023	

Photo of item tested



Compliance Statement (Applicable to component(s) tested)		
Report No.	Item Description/Customer Ref	Nickel Compliance (EN 1811:2015) (Compliant/Non-Compliant)
310991 - 1	BB14G (STEEL)	Compliant

Special
Instructions/
Remarks:

A. Waller
Apprentice Technician

M. Francosi BSc
Analytical Chemist

Compo. Ref. (BAO)	Customer Ref. / Item Description	Component Description	Ni Release ($\mu\text{g}/\text{cm}^2$ / Week)	Compliant (C) / Non-compliant (NC)
99	BB14G (STEEL)	Pins	<0.88	C

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This report supersedes report number : 305583 - 1 Dated: 02-Mar-2023 (Reference:).

EN 12472:2009 / EN1811:2015 - NICKEL RELEASE TEST (METHOD 20A/ 20C)

Report No:	Date work reported:	02/03/2023	Batch No.
305583 - 1	Date work received:	16/02/2023	276

Method:	Sample(s) & their components listed below have been tested according to procedures based on BS EN 12472:2005 + A1:2009 and BS EN1811:2011+ A1:2015 (Plated items) or by BS EN1811:2011+ A1:2015 (Unplated items) as appropriate. Wherever practical, product(s) have been disassembled into their component parts and the nickel release determined for each component. No parts of the product have been 'masked off' during the test, unless specifically instructed by the Customer.
Results & Unit:	Results relate only to the specific materials tested. Nickel released in micrograms per square centimetre per week.
Compliant or Non-Compliant criteria:	<p>For actual <u>items</u> intended to come into direct and prolonged contact with the skin which need to comply with the 0.5 µg/cm²/week limit (Ref Annex A of BS EN1811:2011+A1:2015) - (Based on combined measurement of uncertainty value of 46%): Non-Compliant when nickel release is ≥0.88 µg/cm²/week. Compliant when nickel release is < 0.88 µg/cm²/week.</p> <p>For all post assemblies which are inserted into pierced parts of the human body, the post assembly needs to comply with the 0.2 µg/cm²/week limit (Ref Annex A of BS EN1811:2011+ A1:2015) - (Based on combined measurement of uncertainty value of 46%): Non-Compliant when nickel release is ≥0.35 µg/cm²/week. Compliant when nickel release is < 0.35 µg/cm²/week.</p> <p>Note: Sample components marked as 'compliant' will comply with the requirements of entry 27 of Annexe XVII (REACH) with respect to Nickel Release.</p>

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Report No:	Date work reported:	02/03/2023	Batch No.
305583 - 1	Date work received:	16/02/2023	276

Photo of item tested



Compliance Statement (Applicable to component (s) tested)		
Report No.	Item Description/Customer Ref.	Nickel Compliance (EN 1811:2015) (Compliant/ Non-Compliant)
305583 - 1	UBN14G Titanium	Compliant

Special
instructions/
Remarks:

M. Francosi

Z. Wajid

M. Francosi BSc
Analytical Chemist

Z. Wajid BSc
Analytical Chemist

Nickel Release Test Results (EN1811:2011+A1:2015)

Compo. Ref. (BAO)	Item Description/Customer Ref.	Component Description	Ni Release ($\mu\text{g}/\text{cm}^2$ / week)	Compliant (C) / Non- Compliant (NC)
2	UBN14G Titanium	Curved Bar	<0.88	C