

November 13, 2023

REPORT OF: Chemical Composition Analyses

DATE APPROVED: November 1, 2023

IDENTIFICATION: 2 ea. Bag of mixed titanium samples, client identified as First Batch and Second Batch



Figure 1: Samples, as received

PROCEDURES

Energy dispersive X-ray spectroscopy (EDS) was performed per ASTM E1508-12a at 20 kV using a Thermo Scientific Ultra Dry Detector Model No. 2261A-3UUS-SN, S/N: 7756, with a calibration due date of 12/6/2023. Testing was performed on 11/10/2023.

Hydrogen content was determined per ASTM E1447-22 (combustion method) using a G8 Galileo, S/N: 2688, calibrated prior to use. Testing was performed on 11/10/2023.

Nitrogen and oxygen content were determined per ASTM E1409-13 (combustion method) using a LECO TCH 600 H, N, O Determinator, S/N: 4033, calibrated prior to use. Testing was performed on 11/10/2023.

Carbon content was determined per ASTM E1019-11 (combustion method) using a LECO C-200 analyzer (S/N: 3161), calibrated prior to use. Testing was performed on 11/2/2023.

RESULTS: *Next Page*

Lab No. 46800

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NOTE: Submitted material will be retained for 30 days unless otherwise notified in writing. Any interpretations and/or opinions made in our reports are not subject to the accreditation. Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply to the sample tested and/or inspected and are not necessarily indicative of the qualities of apparently identical or similar materials.

CHEMICAL COMPOSITION

Element	First Batch, Weight %	Second Batch, Weight %	Ti 6Al-4V ELI (Grade 23) UNS R56407	Ti 6Al-4V ELI UNS R56401 ASTM F136
Nitrogen*	<0.01	<0.01	0.03 max	0.05 max
Carbon*	0.00888	0.00968	0.08 max	0.08 max
Hydrogen*	0.0122	0.0038	0.0125 max	0.012 max
Iron	0.22	0.11	0.25 max	0.25 max
Oxygen*	0.11	0.06	0.13 max	0.13 max
Aluminum	5.99	6.07	5.5-6.5	5.5-6.50
Vanadium	3.62	4.17	3.5-4.5	3.5-4.5
Titanium	<i>Remainder</i>	<i>Remainder</i>	<i>Remainder</i>	<i>Remainder</i>

*Determined by combustion methods

The submitted samples met the minimum chemical requirements for Ti6Al-4V ELI, UNS R56401, ASTM F136 and Ti6Al-4V-ELI (Grade 23), UNS R56407.

These results are based on the tests performed and are subject to change upon the receipt of new or additional information.

Respectfully submitted,

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