



# Perryman company

213 Vandale Drive Houston, PA 15342 USA

phone: 724-746-9390 fax: 724-746-9392

## Certified Test Report

Customer: **Performance Titanium Group**  
**8400 Miramar Road Suite 200-248C**  
**San Diego, CA 92126**

Heat No: **PVD8302**  
Melting Source: **Perryman Company, USA**  
Work Order No: **162130**

Date: **11/30/2021**  
Quantity: **509** Lbs

Customer Order No: **PTG64245**

Product: **Ti 6Al-4V ELI .1555/.1565" Dia. CG Bar X 10-12' R/L**

Specification: **ASTM F136-13, AMS 4930L, AMS T-9047A, AMS 4928W, MIL-T-9047G Comp Ti6Al-4VELI Cond A AM 2 Chg Not 1-, ASTM B348 gr 5/23 Rev 19, AMS 6932C, ISO 5832-3 (2016), EN 10204 3.1 (2004), AS6279B, ASTM F1472-20a**

Condition: **Annealed 1300 F - 2 Hours**

<b>Chemistry</b>	<b>Wt %</b>	<b>ASTM E 1447:</b>	<b>Post processing Hydrogen Determination</b>	<b>H: .0018</b>
<b>Metallographic Examination:</b>		<b>ASTM E407:</b>	<b>Microstructure - Equiax alpha-beta</b>	<b>ASTM E 407: Surface Contamination - No alpha case 500x</b>
<b>Etchant: PER1 &amp; PER2</b>			<b>Macrostructure - Acceptable per AMS 2643F</b>	<b>Etchant PER 6</b>
<b>Mechanical Properties</b>	<b>Tensile</b>		<b>ETTC2/ISO 20160:Photo Micrograph</b>	<b>Transverse: A1</b>
<b>ASTM E8/EN 2002-001:2005E</b>	<b>Strength</b>	<b>Strength</b>	<b>Elongation</b>	<b>Reduction of Area</b>
<b>Condition</b>	<b>ksi</b>	<b>ksi</b>	<b>4D</b>	<b>%</b>
<b>As Shipped</b>	<b>151.5</b>	<b>131.3</b>	<b>26</b>	<b>40</b>
	<b>152.3</b>	<b>132.1</b>	<b>21</b>	<b>40</b>

**100% Eddy Current Inspection at finished product - Passed**  
**Perryman has complied with all producer requirements of AS6279**  
**DFAR compliant to sections 252.225.7002,252.225.7008, and 252.225.7009.**

This is to certify that all test results conform to the specifications listed above and that all tests required were performed by Perryman Company.  
The material did not come in contact with Mercury or radioactive contamination at Perryman.  
Attached is a copy of the Ingot Chemistry. All testing performed at room temperature unless otherwise noted.  
The test results relate only to the lots tested and are contained in the records of Perryman Company. The Certified Test Report cannot be reproduced except in full, without written approval. Made in USA.

  
Zachary S. Dragan  
Laboratory Manager  
11/30/2021



Materials Testing Laboratory

PTG  
QA1  
Approved  
11/30/21



**Perryman company**  
 625 Technology Dr., Coal Center, PA 15423  
 phone: 724-746-9390 fax: 724-746-9392


**CERTIFICATE OF TEST**  
**For TITANIUM INGOT**

SHIP TO

**Perryman Company**  
 213 Vandale Drive  
 Houston, PA 15342


WORK ORDER  
**045440**

HEAT NUMBER  
**PVD8302**

	QUANTITY	PCS										
	<b>12470 Lbs</b>	<b>1</b>										
DESCRIPTION <b>FORM: Ingot, Grade: Ti6Al4V Eli, Size: 30</b>												
SPECIFICATION CAPABILITY <b>P-104 Rev 3</b>												
<b>Chemistry (WT%) Top</b>												
O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.12	.006	.012	.18	6.20	3.91	.015	<.004	<.002	.001	.0004	<.001	.003
<b>Chemistry (WT%) Bottom</b>												
O	N	C	Fe	Al	V	Si	Cu	Pd	Y	H	B	Ru
.13	.006	.012	.17	6.16	3.82	.013	<.004	.002	<.001	.0003	<.001	<.003
<b>Comments</b>												
<p>Melting Process:          EBCHR-VAR</p> <p>Calculated Beta Transus T/B:          1803F/1807F</p> <p>Calculated Beta Transus T/B C:          984C/986C</p> <p>Residual Elements, each &lt; .05%          Residual Elements, total &lt; .20%          Balance Titanium.          Melted in the United States of America.          The material is free of radioactive and mercury contamination.          Oxygen/Nitrogen tested in accordance with ASTM E1409.          Carbon tested in accordance with ASTM E1941.          Hydrogen tested in accordance with ASTM E1447.          B tested in accordance with ASTM E2994.          Metallics Tested By XRF in accordance with ASTM E539.</p> <p style="text-align: center;"><b>Elements not required by specification are included in Others(each) and Others(Total)</b></p>												
<p>PTG          QA1          Approved  <b>11/30/21</b></p>												
												

This material conforms to the chemistry and quality system requirements of the specifications and/or Purchase Order referenced. The results relate only to the lot tested and the results are contained in the records of Perryman Company.

The certificate of test cannot be reproduced except in full without the written approval of the laboratory, and the recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal law.

  
**Terrance J. Marth**  
 Laboratory Supervisor