

NOTICE OF SHIPMENT/
PACKING LIST



CERTIFICATE OF TEST

AL 01063
6326168C

TS-4-158

CUST. ORDER NO. & DATE 19924-P		12/06/10		CUST. CODE 878376	ACCEPTING MILL LOUISVILLE, OH	SHIPPER NO. 492447	PRODUCT CODE 13020116060000	MILL ORDER NUMBER 32-120-081	DATE SHIPPED 03/29/11
FORMS DISTRIBUTION SOLD TO → 1 SHIP TO → SPEC		REPEAT ORDER 934355-4	DO DATE 34	PRI-ORITY PRIME SEC.	GOV'T. CONTRACT	MAT'L. 6140	SHIPPING LOCATION LOUISVILLE	OH	INVOICE 243648
		DSO		DSO					
		402							

GRADE AND SPECIFICATIONS
COMMERCIALY PURE TITANIUM GRADE 4 SHEET C R COILS ANNEALED 1BA FIN 3 EDGE (AMS 4901R) (AMS-T-9046A CP-1) (S-1000 DATED 3/2/2010) (S-400 DTD 10/10/2008) (ASTM-F-67-06) (ISO 5832-2:1999E) (DMS 2442 REV E) (RR9000:SABRE) (ASTM-B-265-10) (DMS 1536 REV L) (04/02/09 EXCEPTIONS TO DMS 1536) (MIL-T-9046J & AMEND 2) (11/17/00 EXCEPT TO MIL-T-9046J)

CARRIER - CUSTOMER TRUCK (ECHO)

ITEM	PCS	DIMENSIONS W/G/L	HEAT #	LIFT #	TEST #	GROSS	TARE	NET	THEO	TAG #/	CD	SKID
001A	1	48././067/467.	N94MEM	01431T288A	L246406	3040	60	2980	2927	776712		
002A	1	48././067/460.	N94MEM	01431T288B	L246406	2980	60	2920	2868	776713		
	2	SKIDS				6020	120	5900	5795			

TYPE HEAT/TEST	---C---	---TI---	---N---	---FE---	---O---	R-EACH	R-TOTL
HEAT N94MEM	.005	BAL	.01	.20	.28	<.1000	<.3000
TEST LOCATION	OM	OM	OM	OM			

ITEM TEST NO	YIELD PSI *	TENSILE PSI	% ELONG IN 2"	% R/A	HARDNESS	BEND	ALPHA CASE	GRAIN SIZE	H2 CHECK
001A L246406	L 71000.	94000.	28.			L PASS	PASS	9.	.0044
TEST LOCATION	TC	TC	TC			L PASS	PASS	9.	.0009
002A L246406	L 71000.	94000.	28.			L PASS	PASS	9.	.0044
TEST LOCATION	TC	TC	TC			L PASS	PASS	9.	.0009
						TC	TC	TC	TC

* Y.S. BY 0.2% OFFSET METHOD

PAGE 01 - CONTINUED ON PAGE 02

03/29/11 11:44:33

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Material Safety Data Sheets for this product have been supplied to your Purchasing Department. For an additional copy phone 724-226-6557. CAUTION: Processing that makes fumes, dust, or solutions may cause lung disease. See Material Safety Data Sheets for further information.

WARNING

Les fiches d'information-sécurité de ce produit ont été fournies à votre département chargé des achats. Pour obtenir des exemplaires supplémentaires veuillez téléphoner au numéro suivant 724-226-6557 Attention: les traitements entraînant la production de vapeurs, poussières, ou solutions peuvent, être cause de maladies pulmonaires. Pour plus de renseignements se référer aux fiches d'information-sécurité.

The above is a true copy of data on file. The material and test results conform to the sales contract and specification(s) as set forth in Allegheny Ludlum's Order Acknowledgement.

Tracy McFarland *Tracy McFarland*

NOTICE OF SHIPMENT /
PACKING LIST



CERTIFICATE OF TEST

AL 6100.3
6326168C

CUST. ORDER NO. & DATE 19924-P		12/06/10		CUST. CODE 873376	ACCEPTING MILL LOUISVILLE, OH	SHIPPER NO. 492447	PRODUCT CODE 13020116060000	MILL ORDER NUMBER 32-120-081	DATE SHIPPED 03/29/11
FORMS DISTRIBUTION SOLD TO → 1 SHIP TO → SPEC		REPEAT 93235-4	DC 32	PRI-ORITY	GOV'T. CONTRACT	MAT'L 6140	SHIPPING LOCATION LOUISVILLE	OH	INVOICE 243648
		DSO	DSO	402					

GRADE AND SPECIFICATIONS
COMMERCIALY PURE TITANIUM GRADE 4 SHEET C R COILS ANNEALED 1BA FIN 3 EDGE (AMS 4901R) (AMS-T-9046A CP-1) (S-1000 DATED 3/2/2010) (S-400 DTD 10/10/2008) (ASTM-F-67-06) (ISO 5832-2:1999E) (DMS 2442 REV E) (RR9000: SABRE) (ASTM-B-265-10) (DMS 1536 REV L) (04/02/09 EXCEPTIONS TO DMS 1536) (MIL-T-9046J & AMEND 2) (11/17/00 EXCEPT TO MIL-T-9046J)

CARRIER - CUSTOMER TRUCK (ECHO)

ITEM TEST NO	YIELD PSI *	TENSILE PSI	TRAN ELONG IN 2 INCH	BEND BOTTOM	BEND BOTTOM	BEND BOTTOM	BEND BOTTOM
001A L246406	T 83500. T 82500.	96500. 95500.	26. 29.	L PASS L PASS	L PASS L PASS	T PASS T PASS	T PASS T PASS
TEST LOCATION	TC	TC	TC	TC	TC	TC	TC
ITEM TEST NO	ELEV TEMP Y.S.	AMS ELEV. TEMP YIELD	MELT SOURCE	PREDOMINAT GRAIN SIZE	AVERAGE GRAIN SIZE	BEND	BEND
001A L246406	&42200. &42700.	&37000. &35900.	1.	9. 9.	9. 9.	T PASS T PASS	T PASS T PASS
TEST LOCATION	WM	WM	TC	TC	TC	TC	TC
ITEM TEST NO	YIELD PSI * <td>TENSILE PSI <th>TRAN ELONG IN 2 INCH</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th> </td>	TENSILE PSI <th>TRAN ELONG IN 2 INCH</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th> <th>BEND BOTTOM</th>	TRAN ELONG IN 2 INCH	BEND BOTTOM	BEND BOTTOM	BEND BOTTOM	BEND BOTTOM
002A L246406	T 83500. T 82500.	96500. 95500.	26. 29.	L PASS L PASS	L PASS L PASS	T PASS T PASS	T PASS T PASS
TEST LOCATION	TC	TC	TC	TC	TC	TC	TC
ITEM TEST NO	ELEV TEMP Y.S.	AMS ELEV. TEMP YIELD	MELT SOURCE	PREDOMINAT GRAIN SIZE	AVERAGE GRAIN SIZE	BEND	BEND
002A L246406	&42200. &42700.	&37000. &35900.	1.	9. 9.	9. 9.	T PASS T PASS	T PASS T PASS
TEST LOCATION	WM	WM	TC	TC	TC	TC	TC

METALLOGRAPHIC MAGNIFICATION: 100X ETCHANT USED: KROLLS ETCH

GRADE VERIFICATION WAS CARRIED OUT SPECTROSCOPICALLY

PAGE 02 - CONTINUED ON PAGE 03

03/29/11 11:44:33

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WARNING

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Trace McFarland

NOTICE OF CONFORMANCE
PACKING LIST



CERTIFICATE OF TEST

6326168C

CUST. ORDER NO. & DATE 19924-P		12/06/10		CUST. CODE 873376	ACCEPTING MILL LOUISVILLE, OH	SHIPPER NO. 492447	PRODUCT CODE 13020116060000	MILL ORDER NUMBER 32-120-081	DATE SHIPPED 03/29/11
FORMS DISTRIBUTION		REPEAT 93233-4	DO 32	PRI. OR	GOV'T. CONTRACT	MAT'L 6140	SHIPPING LOCATION LOUISVILLE	OH	INVOICE 243648
SOLD TO →	1	SHIP TO →		SPEC					
				SOLD TO					
				DSO	DSO				
				402					

GRADE AND SPECIFICATIONS
 COMMERCIAL PURE TITANIUM GRADE 4 SHEET C R COILS ANNEALED 1BA FIN 3 EDGE (AMS 4901R) (AMS-T-9046A CP-1) (S-1000 DATED 3/2/2010) (S-400 DTD 10/10/2008) (ASTM-F-67-06) (ISO 5832-2:1999E) (DMS 2442 REV E) (RR9000 SABRE) (ASTM-B-265-10) (DMS 1536 REV L) (04/02/09 EXCEPTIONS TO DMS 1536) (MIL-T-9046J & AMEND 2) (11/17/00 EXCEPT TO MIL-T-9046J)

CARRIER - CUSTOMER TRUCK (ECHO)
 DIN EN 10204:2005 - 3.1 CERTIFICATE DOES NOT INDICATE PED APPROVAL FOR THIS MATERIAL.

HEAT NUMBERS ENDING IN EM WERE MELTED IN RICHLAND, WA. HEAT NUMBERS ENDING IN WC WERE MELTED IN ALBANY, OR
 ALLEGHENY LUDLUM DOES NOT USE MERCURY IN THE TESTING OR PRODUCTION OF ITS PRODUCTS.

MATERIAL MELTED AND ROLLED IN THE UNITED STATES AND COMPLIES WITH DFARS JANUARY 2010 EDITION,
 SECTION 252.225-7008.

FINAL MECHANICAL TESTING PERFORMED BY WESTMORELAND MECHANICAL TESTING & RESEARCH, YOUNGSTOWN, PA.
 (T7869) GEAE S400 AND ISO/IEC 17025 APPROVED FACILITY.

THIS CERTIFICATE OF TEST SHALL NOT BE REPRODUCED EXCEPT IN FULL. MATERIAL MELT AND CHEMICAL TESTING
 WERE PERFORMED BY AN OUTSIDE ALC APPROVED SUPPLIER.

ALLEGHENY LUDLUM WORKS TO THE ROLLS ROYCE SABRE QUALITY MANAGEMENT SYSTEM.

PAGE 03 - CONTINUED ON PAGE 04

03/29/11 11:44:33

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Tracy McFarling *[Signature]*

NOTICE OF SHIPMENT /
PACKING LIST



CERTIFICATE OF TEST
AL 0100-0
63261680

CUST. ORDER NO. & DATE
18924-P

12/06/10 | CUST. CODE
873376

ACCEPTING MILL
LOUISVILLE, OH

SHIPPER NO.
492447

PRODUCT CODE
13020116060000

MILL ORDER NUMBER
32-120-081

DATE SHIPPED
03/29/11

FORMS DISTRIBUTION
GOLD TO → 1 SHIP TO → SPEC TO →
FLUID

REPEAT 93838-4 DO 34 PRI-ORITY
PRIME SEC
DSO DSO
402

GOV'T. CONTRACT

MAT'L 6140
SHIP TO

SHIPPING LOCATION
LOUISVILLE

OH

INVOICE
243648

GRADE AND SPECIFICATIONS

COMMERCIAL PURE TITANIUM GRADE 4 SHEET C R COILS ANNEALED 1BA FIN 3 EDGE (AMS 4901R) (AMS-T-9046A CP-1) (S-1000 DATED 3/2/2010) (S-400 DTD 10/10/2008) (ASTM-F-67-06) (ISO 5832-2:1999E) (DMS 2442 REV E) (RR9000:SABRE) (ASTM-B-265-10) (DMS 1536 REV L) (04/02/09 EXCEPTIONS TO DMS 1536) (MIL-T-9046J & AMEND 2) (11/17/00 EXCEPT TO MIL-T-9046J)

CARRIER - CUSTOMER TRUCK (ECHO)

ALLEGHENY LUDLUM PERFORMS CHEMICAL ANALYSIS BY THE FOLLOWING TECHNIQUES:

- C, S BY COMBUSTION/INFRARED
- N, O, H BY INERT FUSION/THERMAL CONDUCTIVITY
- MN, P, SI, CR, NI, MO, CU, CB, CO, V BY WDXRF
- B BY OES
- AL AND TI (>=0.10%) BY WDXRF, OTHERWISE BY OES
- PB, BI, AG BY GFAA

MILITARY STANDARD MIL-T-9046 WAS CANCELLED 09/17/99 AND REPLACED BY AMS STANDARDS.

MATERIAL TESTED AT ALLEGHENY LUDLUM GEAE S400 APPROVED FACILITIES (T1225):
NATRONA HEIGHTS TECHNICAL CENTER AND BRACKENRIDGE, PA.

ATI ALLEGHENY LUDLUM HOLDS SEVERAL QUALITY AND LABORATORY CERTIFICATIONS THAT INCLUDE ISO-9001, AS9100, AD 2000-MERKBLATT WO, EU PRESSURE EQUIPMENT DIRECTIVE 97/23/EC, NADCAP, ISO/EIC 17025, GEAE S400, GEAE S-1000. REFER TO WWW.ALLEGHENYLUDLUM.COM TO ACCESS THE CURRENT ATI AL QUALITY CERTIFICATIONS.

PRODUCT WAS ANNEALED BY HEATING TO A TEMPERATURE WITHIN THE RANGE 1200 TO 1500 F (649 TO 816C). HOLDING AT THE SELECTED TEMPERATURE (+/- 25F OR 14C) FOR A TIME COMMENSURATE WITH THE THICKNESS AND THE HEATING PROCEDURE USED, AND COOLING AS REQUIRED.

- THE NUMERIC CODES SHOWN UNDER MELT SOURCE CAN BE INTERPRETED AS FOLLOWS:
1. - MATERIAL MELTED, ROLLED AND TESTED IN THE UNITED STATES.
 2. - FOREIGN MELT; ROLLED AND TESTED IN THE UNITED STATES.

PAGE 04 - CONTINUED ON PAGE 05

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Tracy McPherson *[Signature]*

NOTICE OF SHIPMENT /
PACKING LIST



CERTIFICATE OF TEST
6326168C

CUST. ORDER NO. & DATE 19924-P		12/06/10		CUST. CODE 873378	ACCEPTING MILL LOUISVILLE, OH	SHIPPER NO. 492447	PRODUCT CODE 13020116060000	MILL ORDER NUMBER 32-120-081	DATE SHIPPED 03/29/11
FORMS DISTRIBUTION		REPEAT		GOV'T. CONTRACT		MATERIAL		INVOICE	
SOLD TO →		932333-4				8140		243648	
SHIP TO →		DO DATE		PRIORITY		SHIPPING LOCATION		OH	
SPEC		PRIME		SEC		LOUISVILLE			
		DSO		DSO					
		402							

GRADE AND SPECIFICATIONS
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TESTING WAS PERFORMED AT THE FOLLOWING LOCATIONS:
 OM = OUTSIDE MELT
 TC = ATI-ALLEGHENY LUDLUM; 1300 PACIFIC AVENUE; NATRONA HEIGHTS, PA 15065
 WM = WESTMORELAND MECHANICAL TESTING; 221 WESTMORELAND DRIVE; YOUNGSTOWN, PA 15696

FOR ACCESS TO ONLINE CERTIFICATES OF TEST
 REGISTER AT WWW.ALCEXTRA.COM

***** PRELIMINARY CERTIFICATE OF TEST *****

PAGE 05 - FINAL PAGE.

03/29/11 11:44:33

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Tracy McFarland
 Quality Control