

Westmoreland Mechanical Testing & Research, Inc.

P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMTR is a technical leader in the material testing industry.

September 9, 2005

CERTIFICATION

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
1-55 Industrial Park
Pevely, MO 63070-1528

Attention: Jim Galaske

Subject: All processes, performed upon the material as received, were conducted at WMTR, Inc. in accordance with the WMTR Quality Assurance Manual, Rev. 9, dated 4/1/2000.

The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a

SOAK TIME: 5 Minutes

SPEED OF TESTING: 0.0030 in./in./min., 0.0500 in./in./in.

MATERIAL: METALTEK CF8MNNNNMOD

Coil No.	Specimen	Test Log Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	AIUR
C4	Z1	C35777	-320	166.5	100.2	58	50	26.8	33500	20150	0.5061	0.3584	2.00	3.16	0.20116969	M9	R
C4	Z2	C35778	-320	161.7	97.9	44	35	26.1	32550	19700	0.5062	0.4071	2.00	2.87	0.20124920	M9	R
C4	Z3	C35779	-320	166.2	95.4	60	56	26.5	33440	19200	0.5061	0.3354	2.00	3.20	0.20116969	M9	R

AIUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

DISPOSITION: Report



Section 1 of 1
WMTR Report No. 5-33240
P.O. No. 19386
Requisition No. 5813

[Signature]
Roy E. Starr (Matt Wojcik)
Tensile Supervisor

9-9-05
September 9, 2005

Testing Specialists for Aerospace, Automotive, and Material Testing Fields
Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and
Danbury Vt. ~ Tel. +44 (0) 1295 261211

KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMTR, INC.

2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085
 Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

METALTEK INTERNATIONAL
 8600 Commercial Blvd.
 Pevely, MO 63070

August 10, 2005
 Lab No. 05P-2373
 P.O. No. 21324
 Page 1 of 3

Attention: CHUCK RUUD

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): Z1, Z2, Z3-C4 COIL- ALLOY CF8MNMnMod
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: +73°F
REQUIREMENTS: 50 ~~60~~ ft / lbs *CHK 10/24/05*
RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	164	0.086	80
Z1-8	170	0.084	80
Z1-9	160	0.081	80
Average	165	0.084	80
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	168	0.091	90
Z2-8	146	0.084	80
Z2-9	164	0.111	90
Average	159	0.095	87
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	180	0.091	90
Z3-8	204	0.100	90
Z3-9	224	0.106	90
Average	203	0.099	90

Identification of tested specimens provided by client.



[Signature]
 Karl Schmitz, Director
 Materials Testing



Certificate No. 0397-01
 Certificate No. 0397-02

AN OFFICIAL COPY OF TEST REPORT WILL BE PROVIDED BY THIS LABORATORY ON REQUEST.
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 SEE REVERSE FOR CONDITIONS.



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Attention: CHUCK RUUD

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): Z1, Z2, Z3-C4 COIL- ALLOY CF8MNMnMod
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: 77°K
REQUIREMENTS: 35 ft / lbs
RESULTS:

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	78	0.044	40
Z1-8	91	0.049	40
Z1-9	90	0.054	50
Average	86	0.049	43
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	73	0.044	40
Z2-8	80	0.041	40
Z2-9	77	0.061	50
Average	77	0.049	43
BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	92	0.041	40
Z3-8	81	0.052	40
Z3-9	118	0.091	80
Average	97	0.061	53

Identification of tested specimens provided by client.


 8/10/05


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 (Corrected Report 8/12/05)

Attention: CHUCK RUUD

REPORT OF MECHANICAL TESTS

SAMPLE ID: Z1, Z2, Z3-C4 COIL- ALLOY CF8MNMnMod

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)		Modules of Elasticity
						in.	%	
Z1	0.1893	0.0779	58.8	37400	82000	0.10	55.0	22.5 Msi
Z2	0.1893	0.0897	52.6	38400	83500	0.11	55.5	25.3 Msi
Z3	0.1893	0.0908	52.0	36500	83800	0.13	56.5	21.4 Msi

Round, reduced section tensiles

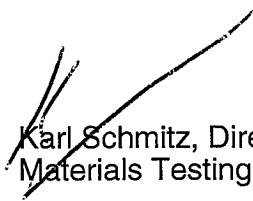
Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

Room temperature Ctr 8/20/05

KS/tlv


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