

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 18, 2005
 Lab No. 05P-2592
 P.O. No. 21324
 Page 1 of 3

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C5- Z1, Z2, Z3
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: 293°K

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	136	0.083	30
Z1-8	126	0.079	30
Z1-9	128	0.081	30
Average	130	0.081	30
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	138	0.080	30
Z2-8	119	0.065	20
Z2-9	137	0.107	40
Average	131	0.084	30
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	139	0.099	30
Z3-8	174	0.096	40
Z3-9	156	0.089	40
Average	156	0.095	37

Identification of tested specimen provided by client.

KS/tiv


 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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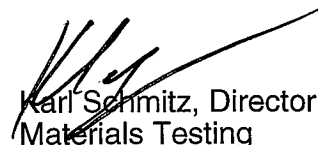
Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): C5- Z1, Z2, Z3
SPECIFICATION: ASTM A 370-03a
SPECIMEN TYPE: "A" Vee Notch
SPECIMEN SIZE: 10 mm x 10 mm
TEMPERATURE OF TEST: 77°K

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-7	78	0.047	40
Z1-8	82	0.053	40
Z1-9	82	0.050	40
Average	81	0.050	40
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z2-7	72	0.043	40
Z2-8	75	0.039	40
Z2-9	72	0.043	40
Average	73	0.042	40
SAMPLE ID	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z3-7	93	0.053	40
Z3-8	86	0.067	50
Z3-9	82	0.065	40
Average	87	0.062	43

Identification of tested specimen provided by client.


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Attention: CHUCK RUUD

REPORT OF MECHANICAL TESTS

SAMPLE ID: C5- Z1, Z2, Z3

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modulus of Elasticity	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length)	
							in.	%
Z1	0.1963	0.1041	47.0	28.4 Msi	41500	92900	1.11	55.0
Z2	0.1893	0.1012	46.5	27.7 Msi	37700	84400	1.04	52.0
Z3	0.1909	0.1052	44.9	25.9 Msi	37100	83700	1.34	67.0

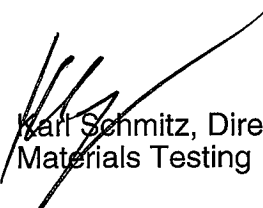
Round, reduced section tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

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