



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

SO No., Item & Date.: 8037077 000050 2015/11/05	Shipment No & Date.: 10001753/3 2015/11/07	TC No., Date & Time : ESA 279206 2015/11/09 - 06 47 33
Sold to Customer Name and Address : SAMUEL SON AND COMPANY LTD 15TH AVENUE 701 NISKU, Alberta, Canada T2C 2A1	Ship to Customer Name and Address : SAMUEL, SON & CO. LIMITED 15TH AVENUE 701 NISKU, Alberta, Canada T9E 7L5	Customer PO NO./Item: A01055 / 5 BOL NO.: 1000175373 Cust.Part No.: Carrier : C P RAIL (CAD FUNDS) - ESAX 21 PM41

Customer Specification: HR STEEL PLATE Carbon Multi Cert ASTM A516 GR 70 (10) / ASME SA516 GR 70 (2015) MEETS ANSI/NACE MR0175/ISO 15156-2 (LATEST EDITION) - BHN 200 MAX Normalized Normalize Temp 1670 °F 17 min CVNL Req 20/16 FT-LBF at -50 0 F Std Thickness Tol PVQ Top and Bottom Standard Surface Flatness 1/2 A20H Fine Grain Fully Killed

Supplementary Instructions: Test Cert 1 J.Meloche@Samuel.com Test Cert 2 Doug Hlady@samuel.com

Insp T/R: Test Report As Per Spec Cust Use PVQ

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HERFIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANY'S STANDARD RECORD KEEPING PRACTICES. THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945 4395 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT. THIS TEST REPORT HAS BEEN GENERATED BY A COMPUTERIZED SYSTEM AND IS VALID WITHOUT A PHYSICAL SIGNATURE.

MEETS EN 10204:2004 TYPE 3.1  
ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM

ALL HEATS FULLY KILLED.  
HEATS INDICATED WITH (\*) FINE GRAINED  
HEATS INDICATED WITH (+) Made in Canada for NAFTA duty preference and NAFTA marking purposes

Dimensions (T x W x L)	Batch No.	Heat No-MS	Quantity	No. of Pcs	Dimensions (T x W x L)	Batch No.	Heat No-MS	Quantity	No. of Pcs
0.5000 " x 96.000 " x 480.00 "	AT5278	2966B3-01	6,534 LB	1	0.5000 " x 96.000 " x 480.00 "	AT5279	2966B3-01	13,068 LB	2
0.5000 " x 96.000 " x 480.00 "	AT5280	2966B3-03	13,068 LB	2	0.5000 " x 96.000 " x 480.00 "	AT5282	2966B3-51	13,068 LB	2
0.5000 " x 96.000 " x 480.00 "	AT5283	2966B3-51	13,068 LB	2					

*****CHEMICAL PROPERTIES*****																
Heat No. (wt%)	C	Mn	P	S	Si	Cr	Ni	Cu	Mo	Al	Nb	V	B	Ti	Ca	DO
2966B3*	0.17	1.23	0.013	0.004	0.330	0.02	0.02	0.03	0.01	0.025	0.000	0.015	0.0004	0.003	0.00340	0.39

KASHIF REHMAN  
MANAGER METALLURGICAL SERVICES

**\*\*WARNING\*\*** THE TEST RESULTS AND VALUES REPORTED HEREIN INDICATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFIED YIELD STRENGTH AND (2) THE ANALYSIS AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR VALUES REPORTED HEREIN CAN NOT BE USED TO QUALIFY THE STEEL FOR ANY SPECIFICATION OTHER THAN THE ONE INDICATED AND CAN NOT BE RELIED UPON FOR ANY PURPOSE, (INCLUDING DESIGN OR CALCULATIONS) AS REPRESENTING THE ACTUAL STRENGTH OF SUCH STEEL.

*ANS*



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SO No. Item & Date.: 8037077 000050 2015/11/05	Shipment No. & Date.: 1000175373 2015/11/07	TC No., Date & Time : ESA-279206 2015/11/09 - 06:47:33						
Sold to Customer Name and Address : SAMUEL SON AND COMPANY LTD 15TH AVENUE 701 NISKU, Alberta, Canada T2C 2A1	Ship to Customer Name and Address: SAMUEL, SON & CO. LIMITED 15TH AVENUE 701 NISKU, Alberta, Canada T9E 7L5	Customer PO NO./Item: A01055 / 5 BOL NO.: 1000175373 Cust.Part No.: Carrier : C P RAIL (CAD FUNDS) - ESAX 21 PM41						
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MEETS EN 10204 2004 TYPE 3.1 ISO QUALITY AND ENVIRONMENTAL CERTIFICATES AVAILABLE AT WWW.ESSARSTEELALGOMA.COM								
***** MECHANICAL PROPERTIES *****								
Hardness Tests								
Heat No.	Batch No.	SRCE	LAB	GAUGE	COND	LOC	MTHD	HARDNESS
2966B3	AT5282	166"	ALG	0.5000	N	B	HBW	156
2966B3	AT5283	166"	ALG	0.5000	N	B	HBW	156
2966B3	AT5278	166"	ALG	0.5000	N	B	HBW	155
2966B3	AT5279	166"	ALG	0.5000	N	B	HBW	156
2966B3	AT5280	166"	ALG	0.5000	N	B	HBW	152

KASHIF REHMAN  
MANAGER METALLURGICAL SERVICES

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\*\*\*\*\* MECHANICAL PROPERTIES \*\*\*\*\*

Impact Tests												
Heat No.	Batch No.	SRCE	LAB	GAUGE	COND	METH	DIR	LOC	SIZE	TEMP(°F)	FULLENERGY(ft-lbf)	FULL AVG(ft-lbf)
2966B3	AT5282	166"	ALG	0.5000	N	CVN	L	B	FULL	-50	82 48 79	70
2966B3	AT5278	166"	ALG	0.5000	N	CVN	L	B	FULL	-50	111 107 109	109
2966B3	AT5283	166"	ALG	0.5000	N	CVN	L	B	FULL	-50	60 109 109	93
2966B3	AT5279	166"	ALG	0.5000	N	CVN	L	B	FULL	-50	93 58 70	74
2966B3	AT5280	166"	ALG	0.5000	N	CVN	L	B	FULL	-50	107 58 117	94

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***** MECHANICAL PROPERTIES *****												
Tensile Tests												
Heat No.	Batch No.	SRCE	LAB	GAUGE	COND	METH	DIR	LOC	YIELD(KSI)	TENSILE(KSI)	EL SCALE	ELONG(%)
2966B3	AT5282	166"	ALG	0.5000	N	2	T	B	52.0	73.0	8"	27
2966B3	AT5283	166"	ALG	0.5000	N	2	T	B	52.0	73.0	8"	27
2966B3	AT5278	166"	ALG	0.5000	N	2	T	B	51.0	74.0	8"	27
2966B3	AT5279	166"	ALG	0.5000	N	2	T	B	52.0	74.0	8"	26
2966B3	AT5280	166"	ALG	0.5000	N	2	T	B	51.0	73.0	8"	27

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