LHe Tank Material Charpy Reports

P.O. 8649-1

00918

SANDMEYER STEEL COMPANY

ONE SANDMEYER LANE • PHILADELPHIA, PA 19116-2598

FAX COVER PAGE

To:	John Abrams	**From:**	Terrill Bohnsack	
Company:	Meyer Tool & Manuf	**Voice:**	215-464-7100	
Fax Number:	708-425-2612	**Fax Number:**	215-677-1430	
Subject:	Heat numbers for Charpy	**Date:** 5/14/03	**Time:** 16:29	**Total Pages:**

Message

Hi John,

I am forwarding to you the quantity and heat numbers of coupons that we are processing for you on your PO # 008649-00:

For Item 25I104	¾ x 4 x 6	Ht # 02FS / Plt # 23688
For Item 25I105	3/8 x 4 x 6	Ht # 601951 / Plt # 24219
	3/8 x 4 x 6	Ht # 821424 / Plt # 25167
For Item 25I106	3/8 x 4 x 6	Ht # 818965 / Plt # 23387
	3/8 x 4 x 6	Ht # 818354 / Plt # 23106
	3/8 x 4 x 6	Ht # 600373 / Plt # 72243
For Item 25I119	1-1/8 x 4 x 6	Ht # 01F8 / Plt # 24365
For Item 25M802	¾ x 4 x 6	Same Batch as 25I104
For Item 25I115 25I576	1 x 4 x 6	Ht # 602194 / Plt # 24688

Regards,

Terrill Bohnsack
Sandmeyer Steel Company

SANDMEYER STEEL COMPANY

ONE SANDMEYER LANE • PHILADELPHIA, PA 19116-3598

FAX COVER PAGE

To:	John Abrams	From:	Terrill Bohnsack		
Company:	Meyer Tool & Manufacturing	Voice:	215-464-7100		
Fax Number:	708-425-2612	Fax Number:	215-677-1430		
Subject:	Impact Tests Results	Date: 5/23/03	Time: 08:08	Total Pages:	11

Message

Good Morning John,

I finally received those Impact Test results late yesterday evening, so here you go. I have also included Mill Test Reports for you. Plate number 23685 / Heat number 02F3 (Your item number 25M802) is in the same batch as Plate number 23688 / Heat number 02F3 (Your item number 25I104). A coupon from Plate number 23688 was impact tested per your specification and is representative for that batch.

If you, or Ed, need anything further please feel free to contact me.

Regards,

Terrill Bohnsack
Sandmeyer Steel Company

Certified Test Report

SSC001-03-05-11653

LABORATORY TESTING INC.
2331 Topaz Drive, Hatfield, PA 19440
TEL: 800-219-9095 • FAX: 800-219-9096

ACCREDITED Cert. # 0117-01, 02, 03, 04

NADCAP Materials Testing Laboratory NDT (PT, MT, RT, UT)

SOLD TO
Sandmeyer Steel Company
One Sandmeyer Lane
Philadelphia, PA 19116-3598

SHIP TO
Sandmeyer Steel Company
One Sandmeyer Lane
Philadelphia, PA 19116
ATTN: Emery M. Gardosh

CUSTOMER P.O.	CERTIFICATION DATE	SHIP VIA
32223	5/22/03	FAX AND MAIL

DESCRIPTION

Test Plates, Type 304L Stainless Steel Coupons,
ASME B&PV Code Section VIII, Division 1, 2001 Edition,
2002 Addenda, Paragraph UG-84.c.1 and UG-84.c.2:

1 pc. 3/8" x 4" x 6" long, Heat #601951, Plate #24219 } 25I105 - 2
1 pc. 3/8" x 4" x 6" long, Heat #821424, Plate #25167
1 pc. 3/8" x 4" x 6" long, Heat #818965, Plate #23387 } 25I106 - 3
1 pc. 3/8" x 4" x 6" long, Heat #818354, Plate #23106
1 pc. 3/8" x 4" x 6" long, Heat #600373, Plate #72243
1 pc. 3/4" x 4" x 6" long, Heat #02F3, Plate #23688 - 25I104 X25M80 - 1
1 pc. 1" x 4" x 6" long, Heat #602194, Plate #24688 - 25I576 X25I115
1 pc. 1-1/8" x 4" x 6" long, Heat #01F8, Plate #24365 - 25I119 - 1

Charpy V-Notch Impact testing at -452° F was performed on (8) sets of the submitted Test Specimens in accordance with ASME SA-370 and (8) sets were found to be in conformance to Customer's requirements with the following results:

PLATE NO. REQUIRED	PIECE NO. ---	FT-LBS. 22 MINIMUM	LAT. EXP. ---	% SHEAR ---
24219	1	178	.056"	100
	2	171	.054"	100
	3	178	.058"	100

NOTE: Sub-sized (9 mm x 10 mm) charpy specimens were used for testing Plate #24219

25167	1	132	.077"	100
	2	141	.080"	100
	3	144	.081"	100

NOTE: Sub-sized (9 mm x 10 mm) charpy specimens were used for testing Plate #25167.

- - -CHARPY V-NOTCH TEST RESULTS CONTINUED ON NEXT PAGE- - -

LABORATORY TESTING INC.
2331 Topaz Drive, Hatfield, PA 19440
TEL: 800-219-9095 • FAX: 800-219-9096

Certified Test Report

SSC001-03-05-11653

ACCREDITED Cert # 0117-01, 02, 03, 04

NADCAP Materials Testing Laboratory NDT (PT, MT, RT, UT)

CHARPY V-NOTCH TEST RESULTS (Continued . . .) – at -452° F on (8) sets of the submitted Test Specimens in accordance with ASME SA-370 and (8) were found to be in conformance to Customer's requirements:

PLATE NO. REQUIRED	PIECE NO. ---	FT-LBS. 22 MINIMUM	LAT. EXP. ---	% SHEAR ---
23387	1	172	.091"	100
	2	164	.087"	100
	3	168	.086"	100

NOTE: Sub-sized (9 mm x 10 mm) charpy specimens were used for testing Plate #23387.

23106	1	172	.093"	100
	2	178	.093"	100
	3	177	.095"	100

NOTE: Sub-sized (9 mm x 10 mm) charpy specimens were used for testing Plate #23106.

72243	1	204	.104"	100
	2	191	.098"	100
	3	200	.102"	100

NOTE: Sub-sized (9 mm x 10 mm) charpy specimens were used for testing Plate #72243.

23688	1	113	.064"	100
	2	114	.069"	100
	3	104	.060"	100
24688	1	130	.067"	100
	2	133	.072"	100
	3	140	.076"	100
24365	1	162	.087"	100
	2	155	.084"	100
	3	165	.089"	100

The services performed above were done in accordance with LTI's Quality System Program Manual Revision 16 dated 9/1/01. These results relate only to the items tested and this report shall not be reproduced, except in full, without the written approval of Laboratory Testing, Inc. L.T.I. is accredited by A2LA in the Chemical, Mechanical and Nondestructive Fields of Testing. L.T.I. is accredited by NADCAP in the Material's Testing and NDT, MT, PT, RT and UT.

MERCURY CONTAMINATION: During the testing and inspection, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing devices employing a single boundary of containment.

NOTE: The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Statutes including Federal Law, Title 18, Chapter 47.

Sherri L. Lengyel
QA Coordinator

By: Sherri L. Lengyel
Authorized Signature

NAS NORTH AMERICAN STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 160171 04

Customer: 3075 001

Mail To:
SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA, PA 19116

Ship To:
SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA, PA 19116

Date: 7/31/2002 Page: 1

Steel: 304L

Finish: HRAP

Corrosion: ASTM A262/01E,180 Bend-OK

Your Order: 60171

NAS Order: AN 0223092 01

PRODUCT DESCRIPTION:

STAINLESS STEEL PLATE, HOT ROLLED, ANNEALED AND PICKLED.
ASTMA240/01,A480/01,A666/00,ASMESA240/01,SA480/01,SA666/01
QQS766D-A X MG PERM,AMS5511G X MRK,MIL4043B,AMD3,X CRWN MRAS

REMARKS:

Material free from mercury contamination. No weld repairs.
* Melted & Manufactured in the USA
Minimum anneal temperature 1920 F, and water for quenching

Product ID #	Coil #	Thickness	Width	Weight	Length		Mark	Pieces	
0602F3 AA	* 0602F3 AA	.7500	61.5000	3,290	240.0000	SHEET	3	1	23683
0602F3 AB	* 0602F3 AB	.7500	61.5000	3,275	240.0000	SHEET	4	1	23684
0602F3 BA	* 0602F3 BA	.7500	61.5000	3,310	240.0000	SHEET	5	1	23685
0602F3 BB	* 0602F3 BB	.7500	61.5000	3,315	240.0000	SHEET	6	1	23686
0602F3 CA	* 0602F3 CA	.7500	61.5000	3,290	240.0000	SHEET	1	1	23687
0602F3 CB	* 0602F3 CB	.7500	61.5000	3,305	240.0000	SHEET	2	1	23688

N 24

CHEMICAL ANALYSIS

Heat	C	CO	CR	CU	MN	MO	N	NB	NI	P	S	SI	TI
02F3	.022	.109	18.429	.244	1.667	.302	.063	.010	8.438	.027	.004	.277	.004

MECHANICAL PROPERTIES

Product ID #	Coil #	Loc	Dir	UTS KSI	.2% YS KSI	ELONG %-2"	Hard RB	D Fer F.N.	R of A %
0602F3 AA	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20
0602F3 AB	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20
0602F3 BA	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20
0602F3 BB	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20
0602F3 CA	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20
0602F3 CB	0602F3	F	T	86.94	37.04	56.50	78.00	5.050	67.20

QC ENGINEER [signature] 7/31/2002

NAS NORTH AMERICAN STAINLESS

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 175625 08

Customer: 3075 001

Mail To:
SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA, PA 19116

Ship To:
SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA, PA 19116

Date: 1/16/2003 Page: 1

Steel: 304L

Finish: HRAP

Corrosion: ASTM A262/01E/180 Bend-OK

Your Order: 60276

NAS Order: XN 0241531 14

PRODUCT DESCRIPTION:

STAINLESS STEEL PLATE, HOT ROLLED, ANNEALED AND PICKLED.
ASTMA240/01,A480/01,A666/00,ASMESA240/01,SA480/01,SA666/01
QQS766D-A X MG PERM,AMS5511G X MRK,MIL4043B,AMD3,X CRWN MEAS

REMARKS:

Material free from mercury contamination. No weld repairs.
* Melted & Manufactured in the USA

24

Product ID #	Coil #	Thickness	Width	Weight	Length		Mark	Pieces
0101F8 BA	* 0101F8 BA	1.1325	61.1764	4,690	242.9887	SHEET	16	1 24364
0101F8 BB	* 0101F8 BB	1.1325	61.1764	4,705	242.9887	SHEET	17	1 24365

22000

CHEMICAL ANALYSIS

Heat	C	CR	CU	MN	MO	N	NI	P	S	SI
01F8	.018	18.706	.213	1.728	.254	.071	8.635	.028	.002	.294

MECHANICAL PROPERTIES

Product ID #	Coil #	Loc	Dir	UTS KSI	.2% YS KSI	ELONG %-2"	Hard RB
0101F8 BA	0101F8	F	T	85.08	38.85	59.00	80.50
0101F8 BB	0101F8	F	T	85.08	38.85	59.00	80.50

QC ENGINEER 1/16/2003

Avesta Sheffield

Avesta Sheffield Plate Inc.

Certificate of Analysis and Tests

OUR ORDER 216478 - 35

HEAT & PIECE 600373-1G 1/02/01

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE

PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE

PHILADELPHIA PA 19116
782001-0000

---------- YOUR ORDER & DATE ----------

60038 0/00/00

---------- ITEM DESCRIPTION ----------

HEAT & PIECE 600373 - 1G X
WEIGHT 2128
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS .375 X 72.000 X 258.000 EXACT

72243

PHY #19458

---------- SPECIFICATIONS ----------

*** MFG IN NEW CASTLE, IN, USA
ASTM A240-00 ASME SA240-98ED
DUPONT SW-300-M JAN 82
AMS 5511G EXCEPT LINE MARK
QQ-S-766D AMENDIII EX.P4.5.2
MELTED ELECTRIC ARC METHOD
ASTM A262-98 PRAC A

FROM SLABS IMPORTED FROM SWEDEN
ASTM A480-99 ASME SA480-98ED
ASME SA312-98ED 00A CHM ONLY
REFINED A.O.D. PROCESS
ASTM A312-00A CHEMISTRY ONLY
FERRITE PER SHAEFFLER/DELONG
ASTM A262-98 PRAC E

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FARENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE OF MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

---------- MECHANICAL & OTHER TESTS ----------

HARDNESS RB	86
GRAIN SIZE	6
YIELD STRENGTH (PSI)	43931
TENSILE STRENGTH (PSI)	88303
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	56.4
REDUCTION OF AREA %	74.8

---------- CHEMICAL COMPOSITION ----------

CARBON	(C)	.014
MANGANESE	(MN)	1.49
PHOSPHORUS	(P)	.032
SULFUR	(S)	.001
SILICON	(SI)	.38
CHROMIUM	(CR)	18.33
NICKEL	(NI)	8.78
COBALT	(CO)	.12
COPPER	(CU)	.47
MOLY	(MO)	.47
NITROGEN	(N)	.07
COLUMBIUM	(CB)	.009
TITANIUM	(TI)	.001
ALUMINUM	(AL)	.002
TIN	(SN)	.012
CALCULATED FERRITE		5.76

KNOWINGLY & 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.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

WELD REPAIRED
DWG. ATTACHED -

Avesta Sheffield Plate Inc.
Box 370

AvestaPolarit, Inc.
Plate Products

AvestaPolarit STAINLESS
An Outokumpu Group company

Certificate of Analysis and Tests

OUR ORDER 231569 - 10

HEAT & PIECE 602194-1B 2/28/03

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

YOUR ORDER & DATE

60287 0/00/00

ITEM DESCRIPTION

HEAT & PIECE 602194 - 1B
WEIGHT 5986
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS 1.000 X 78.000 X 259.000 EXACT

24688

*** MFG IN NEW CASTLE, IN, USA
AMS 5511G EXCEPT LINE MARK
ASTMA480-01A ASMESA480-02AD
ASME SA312-01ED 02AD CHMONLY
QQ-S-766D AMENDIII EX.P4.5.2
MELTED ELECTRIC ARC METHOD
REQUIRES PRODUCT ANALYSIS
NO GRIPPER MARKS
ASTM A262-01 PRAC A

SPECIFICATIONS
FROM SLABS IMPORTED FROM SWEDEN
ASTMA240-01 ASMESA240-0102AD
DUPONT SW-300-M JAN 82
REFINED A.O.D. PROCESS
ASTM A312-01A CHEMISTRY ONLY
FERRITE PER SHAEFFLER/DELONG
PRINT LOT NUMBER ON CERT
NO WELD REPAIRS
ASTM A262-01 PRAC E

PIIY 22140

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FAHRENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR.
FREE OF MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

MECHANICAL & OTHER TESTS

HARDNESS RB	71
GRAIN SIZE	5
YIELD STRENGTH (PSI)	33160
TENSILE STRENGTH (PSI)	82280
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	58.4
REDUCTION OF AREA %	69.7

CHEMICAL COMPOSITION ----- PRODUCT ANALYSIS

CARBON	(C)	.015	(C)	.015
MANGANESE	(MN)	1.44	(MN)	1.46
PHOSPHORUS	(P)	.028	(P)	.031
SULFUR	(S)	.001	(S)	.006
SILICON	(SI)	.34	(SI)	.36
CHROMIUM	(CR)	18.23	(CR)	18.10
NICKEL	(NI)	8.67	(NI)	8.83
COBALT	(CO)	.14	(CO)	.14
COPPER	(CU)	.33	(CU)	.34
MOLY	(MO)	.38	(MO)	.41
NITROGEN	(N)	.07	(N)	.04
COLUMBIUM	(CB)	.002	(CB)	.001
TITANIUM	(TI)	.001	(TI)	.001
ALUMINUM	(AL)	.002	(AL)	.003
TIN	(SN)	.009	(SN)	.006
CALCULATED FERRITE		5.32		

KNOWINGLY & 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.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

James Doubman

CERTIFICATE IN CONFORMANCE WITH DIN50049 3.1.B/EN10204 3.1.B

AvestaPolarit, Inc.
Plate Products
P.O. Box 370
New Castle, Indiana 47362

AvestaPolarit STAINLESS

AvestaPolarit, Inc.
Plate Products

Certificate of Analysis and Tests

OUR ORDER 230641 - 04

HEAT & PIECE 601951-2A 12/19/02

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116
782001-0000

YOUR ORDER & DATE

60233 0/00/00

ITEM DESCRIPTION

HEAT & PIECE 601951 - 2A
WEIGHT 2278
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS .375 X 78.000 X 255.000 EXACT

24219

SPECIFICATIONS

*** MFG IN NEW CASTLE, IN, USA
AMS 5511G EXCEPT LINE MARK
ASTM A480-01 ASME SA480-01ED
ASME SA312-01ED CHMONLY
MELTED ELECTRIC ARC METHOD
REFINED A.O.D. PROCESS
FERRITE PER SHAEFFLER/DELONG
NO GRIPPER MARKS
ASTM A262-01 PRAC A

FROM SLABS IMPORTED FROM SWEDEN
ASTM A240-02 ASME SA240 01ED
DUPONT SW-300-M JAN 82
MIL-S-5059D WITH EXCEPTIONS
QQ-B-766D AMENDIII EX.P4.5.2
ASTM A312-01A CHEMISTRY ONLY
REQUIRES PRODUCT ANALYSIS
NO WELD REPAIRS
ASTM A262-01 PRAC E

PHY 21727

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FARENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE OF MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

MECHANICAL & OTHER TESTS

HARDNESS RB	83
GRAIN SIZE	5
YIELD STRENGTH (PSI)	41294
TENSILE STRENGTH (PSI)	87920
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	56.9
REDUCTION OF AREA %	68.2

CHEMICAL COMPOSITION ----- PRODUCT ANALYSIS

CARBON	(C)	.014	(C)	.013
MANGANESE	(MN)	1.46	(MN)	1.27
PHOSPHORUS	(P)	.027	(P)	.025
SULFUR	(S)	.001	(S)	.006
SILICON	(SI)	.30	(SI)	.31
CHROMIUM	(CR)	18.31	(CR)	18.20
NICKEL	(NI)	8.60	(NI)	8.26
COBALT	(CO)	.19	(CO)	.17
COPPER	(CU)	.39	(CU)	.37
MOLY	(MO)	.41	(MO)	.41
NITROGEN	(N)	.07	(N)	.05
COLUMBIUM	(CB)	.004	(CB)	.004
TITANIUM	(TI)	.001	(TI)	
ALUMINUM	(AL)	.002	(AL)	.002
TIN	(SN)	.010	(SN)	.005
CALCULATED FERRITE		5.57		

KNOWINGLY & 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.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

CERTIFICATE IN CONFORMANCE WITH DIN50049 3.1.B/EN10204 3.1.B

AvestaPolarit, Inc.
Plate Products
P.O. Box 370
Castle, Indiana 47362

AvestaPolarit, Inc.
Plate Products

AvestaPolarit STAINLESS
An Outokumpu Group company

Certificate of Analysis and Tests

OUR ORDER 232536 - 01

HEAT & PIECE 821424-4B 4/01/03

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

YOUR ORDER & DATE

60376 0/00/00

ITEM DESCRIPTION

HEAT & PIECE 821424 - 4B
WEIGHT 4124
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS .375 X 120.000 X 300.000 EXACT

25467 PH# 22466

*** MFG IN NEW CASTLE, IN, USA
AMS 5511G EXCEPT LINE MARK
ASTMA480-01A ASMESA480-02AD
ASME SA312-01ED 02AD CHMONLY
QQ-S-766D AMENDIII EX.P4.5.2
MELTED ELECTRIC ARC METHOD
REQUIRES PRODUCT ANALYSIS
ASTM A262-01 PRAC A

SPECIFICATIONS
FROM SLABS IMPORTED FROM BRITAIN
ASTMA240-01 ASMESA240-0102AD
DUPONT SW-300-M JAN 82
REFINED A.O.D. PROCESS
ASTM A312-01A CHEMISTRY ONLY
FERRITE PER SHAEFFLER/DELONG
PRINT LOT NUMBER ON CERT
ASTM A262-01 PRAC E

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FAHRENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE OF KNOWN MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

MECHANICAL & OTHER TESTS

HARDNESS RB	81
GRAIN SIZE	5
YIELD STRENGTH (PSI)	42972
TENSILE STRENGTH (PSI)	85330
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	55.3
REDUCTION OF AREA %	70.1

CHEMICAL COMPOSITION ----- PRODUCT ANALYSIS

CARBON	(C)	.015	(C)	.013
MANGANESE	(MN)	1.41	(MN)	1.38
PHOSPHORUS	(P)	.026	(P)	.023
SULFUR	(S)	.001	(S)	.007
SILICON	(SI)	.26	(SI)	.27
CHROMIUM	(CR)	18.21	(CR)	18.10
NICKEL	(NI)	8.61	(NI)	8.75
COBALT	(CO)	.13	(CO)	.12
COPPER	(CU)	.37	(CU)	.37
MOLY	(MO)	.44	(MO)	.47
NITROGEN	(N)	.07	(N)	.06
COLUMBIUM	(CB)	.007	(CB)	.006
TITANIUM	(TI)	.003	(TI)	.001
ALUMINUM	(AL)	.006	(AL)	.003
TIN	(SN)	.015	(SN)	.007
CALCULATED FERRITE		5.22		

KNOWINGLY & 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.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

CERTIFICATE IN CONFORMANCE WITH DIN50049 3.1.B/EN10204 3.1.B

AvestaPolarit, Inc.
Plate Products
P.O. Box 370
Castle, Indiana 47392

AvestaPolarit, Inc.
Plate Products

AvestaPolarit STAINLESS

Certificate of Analysis and Tests

OUR ORDER 227145 - 01

HEAT & PIECE 818354-3B 5/06/02

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPAN
ONE SANDMEYER LANE
PHILADELPHIA PA 19116
782001-0000

YOUR ORDER & DATE

60138 0/00/00

PL# 23106

ITEM DESCRIPTION

PHY# 20728

HEAT & PIECE 818354 - 3B
WEIGHT 2903
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS .375 X 96.000 X 264.000 EXACT

SPECIFICATIONS

*** MFG IN NEW CASTLE, IN, USA
ASTM A240-01 ASME SA240 01ED
DUPONT SW-300-M JAN 82
AMS 5511G EXCEPT LINE MARK
QQ-S-766D AMENDIII EX.P4.5.2
MELTED ELECTRIC ARC METHOD
REQUIRES PRODUCT ANALYSIS
NO WELD REPAIRS
ASTM A262-01 PRAC A

FROM SLABS IMPORTED FROM BRITAIN
ASTM A480-01 ASME SA480-01ED
ASME SA312-01ED CHMONLY
REFINED A-O-D PROCESS
ASTM A312-01 CHEMISTRY ONLY
FERRITE PER SHAEFFLER/DELONG
NO GRIPPER MARKS
ASTM A262-01 PRAC E

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FARENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE OF MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

MECHANICAL & OTHER TESTS

HARDNESS RB	85
GRAIN SIZE	5
YIELD STRENGTH (PSI)	50763
TENSILE STRENGTH (PSI)	90335
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	54.9
REDUCTION OF AREA %	70.0

OMI Cert. # 003861

CHEMICAL COMPOSITION ----- PRODUCT ANALYSIS

CARBON	(C)	.018	(C)	.014
MANGANESE	(MN)	1.41	(MN)	1.39
PHOSPHORUS	(P)	.024	(P)	.022
SULFUR	(S)	.001	(S)	.007
SILICON	(SI)	.32	(SI)	.32
CHROMIUM	(CR)	18.20	(CR)	18.00
NICKEL	(NI)	8.58	(NI)	9.35
COBALT	(CO)	.21	(CO)	.18
COPPER	(CU)	.28	(CU)	.27
MOLY	(MO)	.27	(MO)	.28
NITROGEN	(N)	.07	(N)	.07
COLUMBIUM	(CB)	.021	(CB)	.021
TITANIUM	(TI)	.007	(TI)	.004
ALUMINUM	(AL)	.005	(AL)	.004
TIN	(SN)	.013	(SN)	.007
CALCULATED FERRITE		4.83		

KNOWINGLY & 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.

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

AvestaPolarit, Inc.
Plate Products
P.O. Box 370
New Castle, Indiana 47362

AvestaPolarit, Inc.
Plate Products

AvestaPolarit STAINLESS

Certificate of Analysis and Tests

OUR ORDER 227946 - 02 HEAT & PIECE 818965-2C 6/18/02

SOLD TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116

SHIP TO: SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE
PHILADELPHIA PA 19116
782001-0000

---------- YOUR ORDER & DATE ----------

60168 0/00/00

---------- ITEM DESCRIPTION ----------

HEAT & PIECE 818965 - 2C
WEIGHT 2925
FINISH 1
GRADE 304L UNS-S30403
DIMENSIONS .375 X 96.000 X 266.000 EXACT

23387

---------- SPECIFICATIONS ----------

Phil# 27467

*** MFG IN NEW CASTLE, IN, USA
ASTM A240-01 ASME SA240 01ED
DUPONT SW-300-M JAN 82
AMS 5511G EXCEPT LINE MARK
QQ-S-766D AMENDIII EX.P4.5.2
MELTED ELECTRIC ARC METHOD
NO GRIPPER MARKS
ASTM A262-01 PRAC A

FROM SLABS IMPORTED FROM BRITAIN
ASTM A480-01 ASME SA480-01ED
ASME SA312-01ED CHMONLY
REFINED A.O.D. PROCESS
ASTM A312-01A CHEMISTRY ONLY
FERRITE PER SHAEFFLER/DELONG
NO WELD REPAIRS
ASTM A262-01 PRAC E

PLATES & TEST PCS SOLUTION ANNEALED @ 1950 DEGREES FARENHEIT MINIMUM.
THEN WATER COOLED OR RAPIDLY COOLED BY AIR
FREE OF MERCURY CONTAMINATION
HOT ROLLED, ANNEALED & PICKLED (HRAP)

---------- MECHANICAL & OTHER TESTS ----------

HARDNESS RB	82
GRAIN SIZE	4
YIELD STRENGTH (PSI)	44304
TENSILE STRENGTH (PSI)	87469
BEND	OK
INTERGRANULAR CORROSION	OK
ELONGATION % IN 2"	58.4
REDUCTION OF AREA %	61.9

---------- CHEMICAL COMPOSITION ----------

CARBON	(C)	.018
MANGANESE	(MN)	1.43
PHOSPHORUS	(P)	.023
SULFUR	(S)	.002
SILICON	(SI)	.29
CHROMIUM	(CR)	18.18
NICKEL	(NI)	8.58
COBALT	(CO)	.11
COPPER	(CU)	.27
MOLY	(MO)	.31
NITROGEN	(N)	.06
COLUMBIUM	(CB)	.005
TITANIUM	(TI)	.003
ALUMINUM	(AL)	.005
TIN	(SN)	.012
CALCULATED FERRITE		5.55

KNOWINGLY & 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.

James Doubman

JAMES DOUBMAN, QUALITY ASSURANCE MANAGER

AvestaPolarit, Inc.
Plate Products
Box 370
Castle, Indiana 47382

Meyer Tool & Mfg., Inc.
4601 W. Southwest Highway
Oak Lawn, IL 60453
708/425-9080 Fax 708/425-2612

Purchase Order 008649-00

Vendor 000237

To :

Sandmeyer Steel Company
One Sandmeyer Lane
Philadelphia PA 19116--359
USA

Ship to :

Meyer Tool & Mfg.
4601 Southwest Hwy.
Oak Lawn IL 60453
USA

Phone (800) 523-3663 Fax (215) 677-1430

PO Date	Ship Via	FOB	Planner	Confirming to	Terms
05/01/2003	Common Carrier	OUR PLANT	JDA	Terrell	Net 60

Item	Part / Rev / Description / Details	Quantity	Promised Delivery	Unit Cost	Extended Cost
1	Charpy Impact Test 251104 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item I111-6 Part# 251104. MACHINE THREE SAMPLES FROM 304LSS,3/4"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens reprsent which parts.				
2	Charpy Impact Test 251105 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item I111-7 Part# 251105. MACHINE THREE SAMPLES FROM 304LSS,3/8"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens represent which parts.				
	Charpy Impact Test 251108 Rev NS U/M EA	1.00	05/05/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item I111-1 Part# 251108. MACHINE THREE SAMPLES FROM 304LSS,3/8"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens represent which parts.				

VENDOR COPY

Authorized Signature

Meyer Tool & Mfg., Inc.
4601 W. Southwest Highway
Oak Lawn, IL 60453
708/425-9080 Fax 708/425-2612

Purchase Order 008649-00

Vendor 000237

To :

Sandmeyer Steel Company
One Sandmeyer Lane
Philadelphia PA 19116--359
USA

Ship to :

Meyer Tool & Mfg.
4601 Southwest Hwy.
Oak Lawn IL 60453
USA

Phone (800) 523-3663 Fax (215) 677-1430

PO Date	Ship Via	FOB	Planner	Confirming to	Terms
05/01/2003	Common Carrier	OUR PLANT	JDA	Terrell	Net 60

Item	Part / Rev / Description / Details	Quantity	Promised Delivery	Unit Cost	Extended Cost
1	Charpy Impact Test 251116 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item 111-29 Part# 251115. MACHINE THREE SAMPLES FROM 304SS,1"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens represent which parts.				
5	Charpy Impact Test 251119 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item 119 Part# 251119. MACHINE THREE SAMPLES FROM 304LSS,1-1/8"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens represent which parts.				
6	Charpy Impact Test 251576 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item 574-31 Part# 251576. MACHINE THREE SAMPLES FROM SA240 TP 316SS,1"THK.PLATE x 4" x 6" DROP.CHARPY IMPACT TEST,TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testin,but please indicate what specimens represent which parts.				

VENDOR COPY

Authorized Signature

Meyer Tool & Mfg., Inc.
4601 W. Southwest Highway
Oak Lawn, IL 60453
708/425-9080 Fax 708/425-2612

Purchase Order 008649-00
Vendor 000237

To :

Sandmeyer Steel Company
One Sandmeyer Lane
Philadelphia PA 19116-359
USA

Ship to :

Meyer Tool & Mfg.
4601 Southwest Hwy.
Oak Lawn IL 60453
USA

Phone (800) 523-3663 Fax (215) 677-1430

PO Date	Ship Via	FOB	Planner	Confirming to	Terms
05/01/2003	Common Carrier	OUR PLANT	JDA	Terrell	Net 60

Item	Part / Rev / Description / Details	Quantity	Promised Delivery	Unit Cost	Extended Cost
7	Charpy Impact Test 25M802 Rev NS U/M EA	1.00	05/15/2003	135.000	135.00
	Charpy Impact Test of one set of three specimens at -320Deg.F				
	Purchasing Category : JO 00918-0051				
	For Item M802 Part# 25M802, MACHINE THREE SAMPLES FROM SA240 TP 304LSS,3/4"THK,PLATE x 4" x 6" DROP.CHARPY IMPACT TEST TO THE REQUIREMENTS OF SA370 and ASME B&PV Code Section VIII Divison 1 Edition 2001 Addendum 2002 paragraphs UG-84(c)(1) and UG-84(c)(2). Acceptance criteria: 22 ft-lbs (38J). Test Temperature: 4 kelvin. Provide a report of results. Materials of the same size, form and heat number may be combined for testing,but please indicate what specimens represent which parts.				
	Use drops PO 008640-00 for all CHARPY IMPACT TESTS designated on this order.				

Our company values suppliers who consistently:

> Furnish Quality Products
> Deliver On Time
> Are Competitively Priced

Please keep us informed if you have any problems that could adversely affect our production schedule.

Total Items Price	945.00
Sales Tax	0.00
Fixed Cost	0.00
Total PO Price	**$ 945.00**

VENDOR COPY

Authorized Signature

SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE • PHILADELPHIA, PA 19116-3598
800-523-3663 • FAX 215-677-1430 • www.SandmeyerSteel.com

FAX TRANSMISSION SHEET

DATE: 05/23/2003

TO: MEYER TOOL & MANUFACTURING

ATTN: JOHN ABRAM

RECEIVER FAX NUMBER: (708) 425-2612

FROM: MICHAEL GALLAGHER

MESSAGE:

This is page 1 of 3 pages being transmitted.
If you do not receive all of the pages please call us as soon as possible at 800-523-3663.
Thank you.

New Alloys Coming to Sandmeyer Steel Company

2304 Duplex (UNS S32304)
3/16" thick through 1-1/2" thick
Now in stock

2507 Duplex (UNS S32750)
3/16" thick through 1-1/2" thick
Now in stock

317LMN (UNS S31726)
3/16" thick through 1/2" thick
Now in stock

17-4 PH (UNS S17400)
3/16" thick through 1-1/2" thick
Due in stock late June

We are able to submit quotations on your future requirements in these grades

SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE • PHILADELPHIA, PA 19116-3598
800-523-3663 • FAX 215-677-1430 • www.SandmeyerSteel.com

BILL TO:
MEYER TOOL & MANUFACTURING
4601 SOUTHWEST HIGHWAY
OAK LAWN, IL 60453

SHIP TO:

ATTENTION: JOHN ABRAM

PHONE: (708) 425-9080

19440
CUSTOMER ORDER # 008649-00

SSC QUOTE #323901

DATE: 05/23/03

ITEM	QTY	DESCRIPTION	WEIGHT	PRICE	VALUE
		SSC TYPE 304L (UNS S30403) CUT PLATE			
1.	(1)	3/8" X 4" X 6" LABOR ONLY TESTED HT #601951 PLT #24219 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00
2.	(1)	3/8" X 4" X 6" LABOR ONLY TESTED HT #821424 PLT #25167 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00
3.	(1)	3/8" X 4" X 6" LABOR ONLY TESTED HT #818965 PLT #23387 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00
4.	(1)	3/8" X 4" X 6" LABOR ONLY TESTED HT #818354 PLT #23106 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00

SANDMEYER STEEL COMPANY
ONE SANDMEYER LANE • PHILADELPHIA, PA 19116-3598
800-523-3663 • FAX 215-677-1430 • www.SandmeyerSteel.com

ITEM	QTY	DESCRIPTION	WEIGHT	PRICE	VALUE
5.	(1)	3/8" X 4" X 6" LABOR ONLY TESTED HT #600373 PLT #72243 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00
6.	(1)	3/8" X 4" X 6" 3/4 LABOR ONLY TESTED HT #02F3 PLT #23688 TOLERANCE: W +1/8 -0 L +1/8 -0		$189.00/EA	$189.00
7.	(1)	1" X 4" X 6" LABOR ONLY TESTED HT #602194 PLT #24688 TOLERANCE: W +3/16 -0 L +3/16 -0		$189.00/EA	$189.00
8.	(1)	1-1/8" X 4" X 6" LABOR ONLY TESTED HT #01F8 PLT #24365 TOLERANCE: W +1/4 -0 L +1/4 -0		$192.00/EA	$192.00
					1,515.00

MATERIAL IS NOT GUARANTEED TO BE GOODS THAT "ORIGINATE" AS DEFINED IN ARTICLE 401 OF THE NAFTA, UNLESS SPECIFICALLY NOTED AS SUCH.

FOB: DELIVERED - PREPAID

SHIP DATE:

SUBJECT TO TERMS AND CONDITIONS OF SANDMEYER STEEL COMPANY QUOTATION FORM.
QUOTATION SUBJECT TO MATERIAL AVAILABILITY AT THE TIME AN ORDER IS PLACED.
PRICES BASED ON RECEIPT OF ENTIRE ORDER IN FULL AS QUOTED. PRICES SUBJECT TO REVIEW IF ITEMS ARE DELETED OR IF QUANTITIES CHANGED.
SHIP DATE BASED ON NUMBER OF BUSINESS DAYS AFTER RECEIPT OF ORDER.
PRICES SUBJECT TO REVIEW IF ORDER IS PLACED AFTER 15 DAYS FROM DATE OF THIS QUOTATION.

MICHAEL GALLAGHER
ASSISTANT TO THE MANAGER INSIDE SALES

CC: ROBERT LUNDGREN

THB 05/23/2003 09:13:08 SSC QUOTE #323901