

GRAHAM

QA DATA PACKAGE

BASF CORPORATION VENDOR PRINT CONTROL STAMP	
NO COMMENT COMMENTS NOTED NOT ACCEPTABLE PROCEED W/FABRICATION SUBMIT APPROVAL DRAWINGS SUBMIT CERTIFIED DRAWINGS	FOR RECORD
RJ Piorkowski	
BY: 11/25/2009	
DATE	BASF SHALL ASSUME NO RESPONSIBILITY BY REASON OF ITS APPROVAL OF ANY DRAWINGS, PLANS, OR SPECIFICATIONS AND VENDOR SHALL REMAIN SOLELY RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF ALL DRAWINGS, PLANS, AND SPECIFICATIONS PREPARED OR FURNISHED BY VENDOR.

38970149-4592119754-0011 REV 0

09-75491 PE
Job No.
GP258-750L
Unit Description

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by Graham Corporation, 20 Florence Ave, Batavia, New York, 14020, USA

(Name and address of Manufacturer)

2. Manufactured for BASF Corporation, 333 Mt. Hope ave., Dept.904, Rockway, New Jersey, 07866-0909, USA

(Name and address of Purchaser)

3. Location of installation BASF Corporation, 14385 W. Port Arthur Rd., Beaumont, Texas, 77705, USA

(Name and address)

4. Type Vertical
(Horizontal, vertical, or sphere)

Heat Exchanger
(Tank, separator, jkt. vessel, heat exh., etc.)

09-75491-1
(Manufacturer's serial number)

N/A
(CRN)

A-62567-1, Rev. 0
(Drawing number)

38851
(National Board number)

2009
(Year built)

5. ASME Code, Section VIII, Div. 1

2007/ A08
Edition and Addenda (date)

N/A
Code Case number

N/A
Special Service per UG-120(d)

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multichamber vessels.

6. Shell (a) Number of course(s): N/A (b) Overall length 0'

Course(s)			Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7. Heads: (a) SA-516-70
(Material spec. number, grade or type) (H.T. - Time & Temp.)

(b) SA-516-70
(Material spec. number, grade or type) (H.T. - Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	END	1.250"	0	N/A	N/A	N/A	N/A	18.5"	44"			N/A	N/A	N/A
(b)	END	1.250"	0	N/A	N/A	N/A	N/A	18.5"	42.68"			N/A	N/A	N/A

If removable, bolts used (describe other fastening)

SA-193-B7 (6) 1.0" SA-194-2H NUTS
(Material, spec. number, grade, size, number)

8. Type of jacket N/A Jacket closure N/A
(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A If bolted, describe or sketch.

9. MAWP *120 N/A at max. temp. *320 N/A Min. design metal temp. 0 °F at 120 psi
(internal) (external) (internal) (external)

10. Impact test NO - PER UG-20(f) & FIG. UCS-66 NOTE (c) at test temperature of N/A
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press. Hydro. at *156 Proof test N/A

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: N/A N/A N/A N/A N/A
(Stationary (material spec. no.)) (Diameter, (subject to press.)) (Nominal thickness) (Corr. allow.) Attachment (welded or bolted)

N/A N/A N/A N/A N/A
(Floating (material spec. no.)) (Diameter) (Nominal thickness) (Corr. allow.) (Attachment)

13. Tubes: N/A N/A N/A N/A N/A
(Material spec. no., grade or type) (O. D.) (Nominal thickness) (Number) (Type (Straight or U))

Items 14-18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): N/A (b) Overall length N/A

Course(s)			Material Spec./Grade or Type	Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, & C)			Heat Treatment	
No.	Diameter	Length		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

15. Heads: (a) N/A
(Material spec. number, grade or type) (H.T. - Time & Temp.)

(b) N/A
(Material spec. number, grade or type) (H.T. - Time & Temp.)

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A

If removable, bolts used (describe other fastening)

N/A
(Material, spec. number, grade, size, number)

16. MAWP **120 N/A at max. temp. **320 N/A Min. design metal temp. 0 °F at 120 psi
 (internal) (external) (internal) (external)

17. Impact test NO - PER UG-20(f) & FIG. UCS-66 NOTE (c) at test temperature of N/A
 (Indicate yes or no and the component(s) impact tested)

18. Hydro., pneu., or comb. test press. Hydro. at **195 Proof test N/A

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diam. or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
HOT/ COLD IN/OUT	4	4"	150#FLANGED	SA-106-B					a	2-4(3)	
INSPECTION	2	4"	150#STUDD	SA-516-70					INTEGRAL		

20. Supports: Skirt Lugs N/A Legs N/A Others (3) ANGLE Attached BOLTED TO FRAME
 (Yes or no) (Number) (Number) (Describe) (Where and how)

21. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report:

N/A
 (List the name of part, item number, Manufacturer's name and identifying number)

22. Remarks:

Line 12 - -Tube and Plug Dimensions OR Header Dimensions: N/A X N/A X

Length of tubes: 9.0"

OVER PRESSURE PROTECTION MUST BE PROVIDED BY OTHERS PRIOR TO PLACING THE VESSEL IN SERVICE. SEE UG-125.

(3) SA-240-316 + (77) SA-240-304 .4mm PLATES (95 MAX.)

* HOT SIDE

** COLD SIDE

CERTIFICATE OF SHOP COMPLIANCE

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization Number 79 Expires 03/31/2010

Date 11/16/2009 Name Graham Corporation Signed [Signature]
 (Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of NY, OH, PA and employed by HSB CT of Hartford, CT have inspected the pressure vessel described in this Manufacturer's Data Report on November 16, 2009, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 11/16/2009 Signed [Signature] Commissions 10056A, NY4001, OH, PA
 (Authorized Inspector) (National Board incl. endorsements, State, Province and number)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements made in this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. U Certificate of Authorization No. Expires

Date Name Signed
 (Assembler) (Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of and employed by of have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with the ASME BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of . By signing this certificate neither the Inspector nor his/her employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his/her employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date Signed Commissions
 (Authorized Inspector) (National Board incl. endorsements, State, Province and number)



HYDROSTATIC TEST CERTIFICATE

DATE: 11/16/09
CUSTOMER: BASF Corporation
CUSTOMER'S P.O. #: 4592119754
GRAHAM JOB #: 09-75491PE

We certify that the equipment listed below has been subjected to the described test pressures in accordance with approved Graham procedures and that the equipment was observed to be free from any visible leaks. Equipment was hydro tested in accordance with Graham approved ASME Procedure QPP-207, Revision 13.

<u>Equipment</u>	<u>Tag No.</u>	<u>Serial No.</u>	<u>Hydro Test Pressure</u>
Plate Exchanger GP258-750L-80	H-803C	09-75491-1	Hot Side – 156 psig Cold Side – 156 psig

GRAHAM CORPORATION

A handwritten signature in black ink, appearing to be 'A. Derefinko Jr.', is written over the printed name.

Alex Derefinko Jr.
QA Specialist

Witnessed By: N/R
Customer Representative

cc: QA file

MFQAMSHT
QCF #133
REV 1

11/16/09

GRAHAM CORPORATION

PAGE 1

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*****
*
* MATERIAL SUMMARY SHEET FOR
*
* JOB/UNIT 09-75491-01
*
* EQUIPMENT: PLATE EXCHANGER
*
* CUSTOMER NAME: BASF CORP
*
* CUST.ORD.NO.: 4592119754
*
* ACCEPTED BY: ALM Alm 11/16/09
*
* A.I. REVIEW: [Signature] DATE: 11/16/09
*
*****
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MFQAMSH
QCF #133
REV 1

11/16/09

GRAHAM CORPORATION

PAGE 2

PART NUMBER	PART NAME	MATERIAL	MATERIAL MANUFACTURER	HEAT NUMBER
2-0258-B6HOPLATE, PHE		ASME SA-240 UNS-S31600	Allegheny	H327
75491-0022 PLATE, PHE/PUNCH PORTS 1&3		ASME SA-240 UNS-S31600	Allegheny	H327
2-0258-B6HOPLATE, PHE		ASME SA-240 UNS-S31600	Allegheny	H327
75491-0025 PLATE, PHE		ASME SA-240 UNS-S31600	Allegheny	H327
2-0258-A4LOPLATE, PHE		ASME SA-240 UNS-S30400	AK Steel	H300
2-0258-A4HOPLATE, PHE		ASME SA-240 UNS-S30400	AK Steel	H300
75491-0050 PLATE/FIXED COVER		ASME SA-516 GR-70 PVQ	ArcelorMittal	R2223/39F
85015-0050 PIPE		ASME SA-106 GR-B	USS	A22028
75491-0060 COVER-MOVEABLE 150#		ASME SA-516 GR-70 PVQ	SSAB	B9A620

***** THIS IS THE LAST PAGE FOR JOB/UNIT 09-75491-01

3AB

Test Certificate

1770 Bill Sharp Boulevard, Muscatine, IA 52761-9412

Form TC1: Revision 1: Date 31 Oct 2000

Customer: RYERSON INC. ACCOUNTS PAYABLE DEPT. PO BOX 8000 CHICAGO IL 60680		Customer P.O. No.: 4500244710		Mill Order No.: 41-237105-01		Shipping Manifest : MT079712								
Product Description: ASTM A516-70(Q6)/ASME SA516-70(Q7ED.)		Ship Date: 05 Feb 09		Cert No: 061147050		(Page 1 of 1)								
Size: 1.250 X 96.00 X 240.0 (IN)														
Tested Pieces		Tensiles		Charpy Impact Tests										
Heat Id	Piece Id	Piece Dimensions	Tst Loc	YS (PSI)	UTS (PSI)	%RA	Elong % 2in 8in Dir	Average Hardness	Abs. Energy (FTLB) 1 2 3 Avg	% Shear 1 2 3 Avg	Tst Dir (mm)	Tst Temp	BDWTT Temp %Shr	
B9A620	B25	1.252 X 96.00 (DISCRT)	L46000	72000			21 T							
Chemical Analysis														
Heat Id	C	Mn	P	S	Si	Tot Al	Sol Al	Cu	Ni	Cr	Mo	V	Ti	CEV
B9A620	.19	1.02	.012	.008	.25	.025	.024	.30	.15	.07	.04	.001	.007	.41
ORGN USA														

MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT

KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE

CEV (LIW) = C + MN/6 + (CR+MO+V)/5 + (NI+CU)/15

100% MELTED AND MANUFACTURED IN THE USA. MTR DIN EN10204 TYPE 3.1 COMPLIANT.

B9A620 B25

PCES: 5, WGT: 41008

B074322

G-22

ITEM 9

P/N 27013

GRAHAM Corporation
3-19-08
QC Accept

5501

(u) Cust Part # : 360003537

WE HEREBY CERTIFY THAT THIS MATERIAL
WAS TESTED IN ACCORDANCE WITH THE
APPROPRIATE SPECIFICATION

B. H. Wales

SENIOR METALLURGIST - PRODUCT



UNITED STATES STEEL

TUBULAR PRODUCTS

CERTIFIED TEST REPORT

(IN ACCORDANCE WITH ISO 10474/EN10204/DIN5048 3.1.b)

DATE: 09/23/06
TIME: 04:06:18
SERIAL NO: 10012268

MLL ORDER ITEM NO DR37605 02	SHIPPER NO. T48110	P.O. NUMBER A93337	VEHICLE ID PUB6116-OH	VENDOR USS TUBULAR PRODUCTS 2199 EAST 28TH ST. LORAIN, OH 44055
SOLD TO ADDRESS COMMERCIAL PIPE & SUPPLY CORP 1920 ELMWOOD AVE BUFFALO NY 14207-1960		MAIL TO ADDRESS COMMERCIAL PIPE & SUPPLY CORP ATTN: R. MOORE (UPON SHFT) 1920 ELMWOOD AVE BUFFALO NY 14207-1960		

SPECIFICATION AND GRADE

PIPE CARBON SMLS STD PIPE API 5L-43RD EDITION DATED 3/04 PSL-1 GRADE B AND GRADE X42 ASTM A53-*05 ASTM A106-*04B GRADE B QUAD STENCIL ASME SA53-*2004 EDITION ASME SA106-*2004 EDITION GRADE B BIK REG MILL COAT PE BEV 30 DEG MEETING ALL THE APPLICABLE REQUIREMENTS OF NACE STANDARD MR-01-75 *2002

G-22 PW 25033
COMPANY NAME *Graham*
P.O. # *3079813*
UP # *41685-4*

MATERIAL COND:	AS ROLLED	O.D.: 4.500 (114.300)		WALL: 0.337 (8.559)		In (mm)					
PRODUCT IDENTIFICATION	TENSILE TEST TYPE/ ORIENTATION	TEST COND.	GAUGE WIDTH IN	YIELD PSI MIN: 42000 MAX:	EXT % PSI MIN: 70000 MAX:	TENSILE PSI MIN: 70000 MAX:	VT	ELONG % (IN 2") MIN: 27.5 MAX: 41.0	HARDNESS SCALE: HRB MIN: 99.0 MAX: 84.7	MIN HYDRO PSI 3000	DWELL (SEC)
A22028	STRIP/L/B	AR	1.500	45600	.50	74500	0.61	41.0	B 84.7	3000	5
** END OF DATA THIS SHEET **											

LEGEND:	L- LONGITUDINAL U- UPSET	T- TRANSVERSE NM- NORMALIZED	QT- QUENCH & TEMPERED SR- STRESS RELIEVED				AR- AS ROLLED				B- BODY				W- WELD			
			C	CE	CR	CU	HI	CR	MO	AL	M	V	U	TI	CB	CO	CE*	MAX
A22028	HEAT	20	105/010	004	20	03	02	04	01	031		0030001	002	001	001			.50
A22028	PROD	20	105/009	005	19	02	01	04	00	032		0010001	002	001	001			.39
A22028	PROD	21	106/009	005	19	02	01	04	00	033		0020000	002	001	001			.40
** END OF DATA THIS SHEET **																		

*C.E. IS BASED ON THE FOLLOWING EQUATION(S): CE=C+ (MN/6) + (CR+MO+V) / 5+ (NI+CU) / 15

DECIMAL POSITIONS FOR ELEMENTS ARE INDICATED BY THE LEFT MARGIN, VERTICAL DOTTED LINE OR DECIMAL POINT.

ACCEPTED
DATE 9/29/06
M.A. MORIARTY (QC)

GRAHAM Corporation
11/5/07
QC Accept

UNITED STATES STEEL

TUBULAR PRODUCTS

CERTIFIED TEST REPORT

(IN ACCORDANCE WITH ISO 10474/EN10204/DIN50048 3.1.b)

DATE: 09/23/06
TIME: 04:06:18
SERIAL NO: L0012268

MILL ORDER ITEM NO DR37605 02		SHIPPER'S NO. T48110		P.O. NUMBER A93337		Q.D.I. 4.500 (114.300)		WALL THICKNESS 0.337 (8.559)		In (mm)		In (mm)	
MATERIAL COND: AS ROLLED		FLAT		BEND		GRAIN SIZE		MIN COLLAPSE		DIR		TEST LOC.	
PRODUCT IDENTIFICATION		OK		**		**		END OF DATA THIS SHEET **		DEG		TEMP	
A22028										SIZE		TEST COND.	
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TEST CERTIFICATE

SHIP TO:

ARCELORMITTAL PLATE LLC
GRAHAM CORPORATION
20 FLORENCE AVE.
BATAVIA NY 14020PAGE NO: 01 OF 02
FILE NO: 3277-01-01
MILL ORDER NO: 29580-004
MELT NO: R2223
SLAB NO: 39F
DATE: 05/30/09

SOLD TO:

GRAHAM CORPORATION
20 FLORENCE AVE.
P.O. BOX 719
BATAVIA NY 14020

SEND TO:

01-C

PLATE DIMENSIONS / DESCRIPTION

TOTAL QTY	GAUGE	WIDTH	LENGTH	DESCRIPTION	PIECE WEIGHT
2	1.25"	96"	240"	RECTANGLE	8168#

CUSTOMER INFORMATION

CUSTOMER PO: B091631

CUSTOMER ITEM NO. 9

G-22
PART NO. 0027013

SPECIFICATION (S)

THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S).

ASME SA516 REV ED YR 07 GR 70
SPEC MOD FOR CARBON ASME SA516 08A GRADE 70
THE MANAGEMENT SYSTEMS FOR MANUFACTURE OF THIS PRODUCT ARE CERTIFIED TO ISO 9001:2000 (CERTIFICATE NO. 30130) AND ISO 14001 (CERTIFICATE NO. 006928).

CHEMICAL COMPOSITION

MELT: R2223	C	MN	P	S	CU	SI	NI	CR	MO
	.17	1.03	.006	.004	.07	.34	.10	.11	.02

MELT: R2223	V	TI	AL	CB	CEF
	.001	.002	.023	.001	.38

CARBON EQUIVALENT FORMULA (CEF)

$$CEF = C + (MN * .1667) + ((CR + MO + V) * .2000) + ((CU + NI) * .0667)$$

MANUFACTURE

MCQUAID-EHN GRAIN SIZE PER E112 - 7-8

TENSILE PROPERTIES

SLAB NO.	LOC	DIR	YIELD STRENGTH PSI X 100	TENSILE STRENGTH PSI X 100	ELONGATION GAGE LGTH	%
39F	BOT.	TRANS.	530	764	2.00"	30.0

GRAHAM
Corporation8/10-6-2-09
QC AcceptWE HEREBY CERTIFY THE ABOVE
INFORMATION IS CORRECT:QUALITY ASSURANCE LABORATORY
COATESVILLE, PA 19320Elinore Zaplitny
SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY

TEST CERTIFICATE

PAGE NO: 02 OF 02
FILE NO: 3277-01-01
MILL ORDER NO: 29580-004
MELT NO: R2223
SLAB NO: 39F
DATE: 05/30/09

GENERAL INFORMATION

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE U.S.A. ✓
MERCURY OR MERCURY COMPOUNDS ARE NOT USED IN THE
MANUFACTURE OF ARCELORMITTAL PLATE LLC PRODUCTS.

B/L #66986 CUSTOMER'S TRUCK

WE HEREBY CERTIFY THE ABOVE
INFORMATION IS CORRECT:

QUALITY ASSURANCE LABORATORY
COATESVILLE, PA 19320



SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY



AK Steel Corporation
Metallurgical Test Report
Coshocton Works
Coshocton, OH 43812

Page 1
Load No. 8817629
SRN No. 8817629
So# 3787
Bo# B088162

PHE DEVELOPMENT CORP
809 DELAWARE ST
WASHINGTON CH, OH 43160

S H I P T O
PHE DEVELOPMENT CORP
C/O WESTLAKE METAL INDUSTRIES
36696 SUGAR RIDGE ROAD
N RIDGEVILLE, OH 44039

MILL ORDER NO. 965233521-0091
PART NO.
ENGLISH UNITS --PRODUCT-- METRIC UNITS
.0157 NOM 14.8980 X COIL

PROCESSOR ORDER NO. M3623

BUYERS ORDER NO. M3623

SKID ID	PIECE	HEAT	PARENT COIL ID	NET WEIGHT
SKD845819	1	7471752	0948464-02	4,760 LBS. 2,159 KG.
TOTAL SKIDS	TOTAL PIECES		TOTAL NET WEIGHT	
1	1		4,760 LBS. 2,159 KG.	

CHEMICAL ANALYSIS

P-Product Analysis of Parent Coil									
L-Ladle Analysis of Heat									
ID	C	MIN	P	S	SI	CR	NI	N	
L 7471752	.05	1.34	.026	.002	.38	18.21	8.17	.031	

REMARKS:
SHIPPING DATE: 02/15/2008
CR STRIP TYPE 304 STAINLESS #2B FINISH #3 SLIT EDGE * ASTM A 240 -07 (UNS S30400). * ELONGATION 50% MIN * ASME SA-240 SECTION I
I PART A (2004 ED, 2005 ADDENDA)

PRODUCT DESCRIPTION

PARENT COIL ID	POS (F/T)	DIR (L, T, D)	COND	% ELONG 2 INCH MEASURED	TENSILE STRENGTH (KSI)	Y.S. 2% OFFSET (KSI)	ROCKWELL HARDNESS Tail	ROCKWELL HARDNESS Front
0948464-02	T	T	A.S.T.M	65.50	96	38.2	B 73	B 73
PARENT COIL ID	POS (F/T)	DIR (L, T, D)	COND	GRAIN SIZE ASTM E112				
0948464-02	T		A.S.T.M	8.00				
0948464-02	F		A.S.T.M	8.00				

THE CHEMICAL ANALYSES AND PHYSICAL OR MECHANICAL TESTS REPEATED ABOVE ARE CORRECT AS CONTAINED IN THE RECORDS OF THE CORPORATION.
ALL TESTING IS DONE IN ACCORDANCE WITH A.S.T.M. STANDARDS UNLESS OTHERWISE NOTED

THIS CERTIFIED TEST REPORT HAS BEEN DELIVERED TO A CONSIGNEE OF MATERIAL PURCHASED FROM AK Steel Corporation. TO AVOID THE POSSIBILITY OF ITS MISUSE ON DELIVERY OF THE REPORT TO A THIRD PARTY IT MUST BE RE-CERTIFIED BY AND UNDER THE NAME OF SUCH CONSIGNEE

SIGNED *Quito Raymond* DATE 02/15/2008 TIME 19:33 PM
APPLICATION ENGINEER

GRAHAM Corporation
200-122-08
QC Accept

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M10
0.4mm
304ss

Allegheny Ludlum
Allegheny Technologies

1327

2000

150799

SECRET, INDIAN

REVISED 1-10-68

CARPI
- GREAT
LIVES, INC.

[illegible]

2005

Figure 1

1. *Introduction*
 2. *Methodology*
 3. *Results*
 4. *Discussion*
 5. *Conclusion*
 6. *References*
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RESEARCH REPORT

Figure 1

GRAHAM
Corporation
D/D 7-22-09
QC Accept

BO 27785
G-18 2-6258
P/W

2000

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PO# B092785

NOTICE OF SHIPMENT/
PACKING LIST



CERTIFICATE OF TEST

SHIP TO	DATE	QUANTITY	SHIP TO	DATE	QUANTITY
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134

PRIME DEVELOPMENT CORPORATION
809 DELAWARE STREET
WASHINGTON C.H. OH 43160

WESTLAKE METAL INDUSTRIES
16896 SUGAR RIDGE ROAD
NORTH RIDGEVILLE OH 44039

GRADE AND SPECIFICATIONS

ALLEGHENY STAINLESS STEEL TYPE 316-L C R STRIP COLLS ANNEALED 2B FIN 3 EDGE (ASTM-A-480-08A) (ASTM-A-240-08)
(ASME-SA-240-07A)

CARRIER - GREAT AMERICAN LINES, INC.

THIS CERTIFICATE OF TEST SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF THE COMPANY. THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. MATERIAL WAS MANUFACTURED IN ACCORDANCE WITH THE ALC QUALITY MANUAL REVISION 17 DATED 05/12/2008. ALC HOLDS SEVERAL QUALITY CERTIFICATIONS THAT INCLUDE ISO-9001, DIN EN 10204:2005 - 3.1, ALLEGHENY LUDLUM IS APPROVED AS A MANUFACTURER ACCORDING TO AD-NERT ELANT WO/TED100 AND THE PRESSURE EQUIPMENT DIRECTIVE PED 97/23/EC. TESTING WAS PERFORMED AT ALC NADCAP AND ISO/IEC 17025 APPROVED LABORATORIES LOCATED AT NATRONA HEIGHTS, BRACKENRIDGE, LATPOBE, AND MIDLAND, PA FACILITIES OR A NADCAP AND ISO/IEC 17025 ACCREDITED LABORATORY.

ALLEGHENY LUDLUM PERFORMS CHEMICAL ANALYSIS BY THE FOLLOWING TECHNIQUES:

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

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

SHIP TO	DATE	QUANTITY	SHIP TO	DATE	QUANTITY
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134
PRIME SEC.	07/17/08	687134	SHIP TO	09/02/08	687134

for M. Ximenes

1327

9/12/08

9/20/2018

FOOTNOTES

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Examination

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Examine



NB 38851

CERTIFIED BY

GRAHAM CORPORATION

HOTSIDE MAWP 120 PSIG AT 320 °F

COLD SIDE MAWP 120 PSIG AT 320 °F

MIN DESIGN METAL TEMP AT MAWP:

HOTSIDE 0 °F COLD SIDE 0 °F

S/N 09-75491-1 YEAR 2009

GRAHAM CORPORATION

BATAVIA, NEW YORK

"ULTRAHEAT" PLATE HEAT EXCHANGER

MODEL NO.	GP258	SURFACE	199 SQ. FT.
SERIAL NO.	09-75491-1	DATE BUILT	2009
TAG NO.	H-803C	CODE	ASME SECT. VIII DIV. 1
M.A.W.P.	120 PSIG	FOR	4552119754
TEST PRESS.	156 PSIG		
DESIGN TEMP.	320 DEG. F.		
SERVICE	WATER / DOOFROST HD 23%		

MADE IN U.S.A.