

102279

ES215

1. Manufactured and certified by **Industrial Alloy Fabricators, Inc. 2345 Quince St. Forest Grove, OR 97116**  
(name and address of manufacturer)
2. Manufactured for **SWENSON PROCESS EQUIPMENT INC. HARVEY, ILLINOIS**  
(name and address of purchaser)
3. Location of Installation **RHONE POULENC, INC. INSTITUTE, WEST VIRGINIA**  
(name and address)
4. Type: **HORIZONTAL** **Heat Exchanger** **D-1708** **NA** **D-1708 REV 1A** **1475** **1992**  
(horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 **1989 Edition, A91** **NA** **NA**  
Edition and Addenda (date) Code Case No. 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 multi-chamber vessels.

6. Shell (a)No. of course(s): **3** (b)Overall length (ft & in.): **27'-9-1/8"**

Course(s)			Material		Thickness		Long Joint (Cat A)			Circum. Joint (Cat. A, B & C)			Heat Treatment			
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None		Eff.	Type	Full, Spot, None		Eff.	Temp.	Time
<b>3</b>	<b>32" OD</b>	<b>27'-9-1/8"</b>	<b>SA-240 316L</b>		<b>5/16"</b>	<b>1/16"</b>	<b>1</b>	<b>SPOT</b>		<b>85%</b>	<b>1</b>	<b>SPOT</b>		<b>85%</b>	<b>NONE</b>	<b>NA</b>
<b>NA</b>																
<b>NA</b>																

7. Heads: (a) **NA** (b) **NA**  
(Mat'l Spec. No., Grade or Type)H.T.-Time & Temp (Mat'l Spec. No., Grade or Type)H.T.-Time & Temp

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

If removable, bolts used (describe other fastening) **NA**  
(Mat'l Spec. No., Grade, Size, No.)

8. Type of jacket **NA** Jacket closure \_\_\_\_\_  
(Describe as oggee & weld, bar, etc.)

Bar, give dimensions **NA** If bolted, describe or sketch.

9. MAWP **90** **15** psi at max. temp. **345** **150** deg F Min. design metal temp. **-20** deg F at **90-15** psi.  
(internal) (external) (internal) (external)

10. Impact test **No impact test required per: UHA-51**  
(Indicate yes or no and the component(s) impact tested)

11. Hydro., Pneu., or comb. test press. Hydro @ **169** psi Proof test **NA**

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: **SA-240 316L** **31.5"** **1-3/8"** **1/8"** **Welded**  
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

**NA** Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: **SA-249 TP316L** **1-1/4"** **.065"** **196** **Straight**  
Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge 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): **2** (b)Overall length (ft & in.): **2'-0-1/8"**

Course(s)			Material		Thickness		Long Joint (Cat A)			Circum. Joint (Cat. A, B & C)			Heat Treatment			
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None		Eff.	Type	Full, Spot, None		Eff.	Temp.	Time
<b>1</b>	<b>32" OD</b>	<b>1'-4-1/8"</b>	<b>SA-240 316L</b>		<b>5/16"</b>	<b>1/16"</b>	<b>1</b>	<b>SPOT</b>		<b>85%</b>	<b>NONE</b>	<b>NA</b>		<b>85%</b>	<b>NONE</b>	<b>NA</b>
<b>1</b>	<b>32" OD</b>	<b>0'-8"</b>	<b>SA-240 316L</b>		<b>5/16"</b>	<b>1/16"</b>	<b>1</b>	<b>SPOT</b>		<b>85%</b>	<b>NONE</b>	<b>NA</b>		<b>85%</b>	<b>NONE</b>	<b>NA</b>
<b>NA</b>																

15. Heads: (a) **SA-240 316L** (b) **SA-240 316L**  
(Mat'l Spec. No., Grade or Type)H.T.-Time & Temp (Mat'l Spec. No., Grade or Type)H.T.-Time & Temp

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical	Conical	Hemispherical	Flat	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full, Spot, Non	Eff.
<b>(a)</b>	<b>END</b>	<b>2-3/8"</b>	<b>1/16"</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>37-5/8"</b>	<b>NA</b>	<b>NA</b>	<b>NONE</b>	<b>NA</b>	<b>85%</b>
	<b>END</b>	<b>2-3/8"</b>	<b>1/16"</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>37-5/8"</b>	<b>NA</b>	<b>NA</b>	<b>NONE</b>	<b>NA</b>	<b>85%</b>

If removable, bolts used (describe other fastening) **SA-193 B7 7/8" diameter 40 required (BOTH ENDS)**  
(Mat'l Spec. No., Grade, Size, No.)

16. MAWP 90 (internal) 15 (external) psi at max. temp. 237 (internal) 150 (external) deg F Min. design metal temp. -20 deg F at 90/15 psi.

17. Impact test NO IMPACT TEST REQUIRED PER: UHA-51 (Indicate yes or no and the component(s) impact tested)

Hydro., Pneu., or comb. test press. Hydro @ 169 psi Proof test NA

Nozzles, inspection, and safety valve openings:

Table with columns: Purpose (inlet, Outlet, Drain, etc.), No., Diameter or Size, Flange Type, Material (Nozzle, Flange), Nozzle Thickness (Nom., Corr.), Reinforcement Material, How Attached (Nozzle, Flange), Location (Insp. Open.). Rows include LIQ. OUTL., TEMP. IND., LIQ. INL., VAPOR INL., COND. OUTL., and VENT.

20. Supports: Skirt No (Yes or No) Lugs NA (No.) Legs NA (No.) Others 2 SADDLES (Describe) Attached SHELL/WELD (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: (List the name of part, item number, mfg's, name and identifying number)

NA

22. Remarks: SEE ATTACHED U-4 FORM THIS REPORT COVERS ONE FOUR-PASS HEATING ELEMENT EQUIP. NO. E-5215 Hydro Tested in the: Horizontal Position Inspection Openings UG-46 (f)(5) & Not Required per UG-46(a) Shell Side has: 1 LONGITUDINAL BAFFLE & 18 CROSS BAFFLES Channel Side is 4 Pass

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 Code for Pressure Vessels, Section VIII, Division 1,

U Certificate of Authorization No. 12,619 Expires April 30, 19 93

Date 10/20/92 Name Industrial Alloy Fabricators, Inc. (Manufacturer) Signed [Signature] (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of OR and employed by The Building Codes Agency of OREGON have inspected the pressure vessel described in this Manufacturer's Data Report on 10-20-92, 19 92, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME Code, Section VIII, Division 1.

Date 10-20-92 Signed [Signature] (Authorized Inspector) Commissions NB # 6869 OR # 507 (Nat'l Board incl. endorsement, State, Province and No.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1,

U Certificate of Authorization No. NA Expires , 19

Date Name NA (Assembler) Signed (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 the State or Province of and employed by have compared the statements in this Manufacture'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 ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of psi. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this Manufacturer's Data Report.

Date Signed (Authorized Inspector) Commissions (Nat'l Board incl. endorsement, State, Province and No.)

102279 E5215

1. Manufactured and certified by Industrial Alloy Fabricators, Inc. 2345 Quince St. Forest Grove, OR 97116  
(name and address of manufacturer)

2. Manufactured for SWENSON PROCESS EQUIPMENT INC. HARVEY, ILLINOIS  
(name and address of purchaser)

3. Location of Installation RHONE POULENC, INC. INSTITUTE, WEST VIRGINIA  
(name and address)

4. Type: HORIZONTAL Heat Exchanger D-1708  
(horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc) (Mfg's serial No.)

NA D-1708 REV 1A 1475 1992  
(CRN) (Drawing No.) (Nat'l Bd. No.) (Year built)

Data Report Item Number Form U-1 Remarks

**Item 19 Nozzles, inspection, and safety valve openings:**

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.	Material	Nozzle	Flange	
(39) DRAIN	1	2"	150# LJ	SA-312 316L	SA-105	.218"	1/16"	INTEGRAL	WELD	LOOSE	NA

**CONDENSATE POT BOLTED TO 6" COND. OUTL.**

6. Shell (a)No. of course(s): 1 (b)Overall length (ft & in.): 2'-1"

Course(s)			Material	Thickness		Long Joint (Cat A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type	Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	6-5/8" OD	2'-1"	SA-312 TP316L	280"	1/16"	1	NONE	85%	1	NONE	70%	NONE	NA

7. Heads: (a) SA-403 316L (b) NA  
(Mat'l Spec. No., Grade or Type)H.T.-Time & Temp (Mat'l Spec. No., Grade or Type)H.T.-Time & Temp

Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical	Conical	Hemispherical	Flat	Side to Pressure		Category A		
	Min.	Corr.	Crown	Knuckle	Ratio	Apex Angle	Radius	Diameter	Convex	Concave	Type	Full, Spot, None	Eff.
BOTTOM	.245"	1/16"	NA	NA	2:1	NA	NA	NA	YES	YES	NONE	NA	85%
(b) NA													

If removable, bolts used (describe other fastening) SA-193 B7 3/4" diameter 8 required

**Item 19 Nozzles, inspection, and safety valve openings:**

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.	Material	Nozzle	Flange	
(37) VENT	1	1-1/2"	150# LJ	SA-312 316L	SA-105	.200"	1/16"	INTEGRAL	WELD	LOOSE	NA
(52) LEVEL GA.	1	3"	150# LJ	SA-312 316L	SA-105	.300"	1/16"	INTEGRAL	WELD	LOOSE	NA
(53) LEVEL GA.	1	3"	150# LJ	SA-312 316L	SA-105	.300"	1/16"	INTEGRAL	WELD	LOOSE	NA
(36) COND. OUTL.	1	2"	150# LJ	SA-312 316L	SA-105	.218"	1/16"	INTEGRAL	WELD	LOOSE	NA
(38) LEVEL CTL.	1	3/4"	150# LJ	SA-312 316L	SA-105	.154"	1/16"	INTEGRAL	WELD	LOOSE	NA
(61) LEVEL CTL.	1	3/4"	150# LJ	SA-312 316L	SA-105	.154"	1/16"	INTEGRAL	WELD	LOOSE	NA

Certificate of Authorization: Type U No. 12,619 Expires April 30, 19 93

Date 10/20/92 Name Industrial Alloy Fabricators, Inc. Signed [Signature]  
(manufacturer) (representative)

Date 10-20-92 Name [Signature] Commissions NB # 6869 OR # 507  
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)