

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

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
3	32" OD	27'-9-1/8"	SA-240 316L		5/16"	1/16"	1	SPOT	85%	1	SPOT	85%	NONE	NA
NA														
NA														

7. Heads: (a) NA (b) NA													
(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
(a)	NA												
(b)	NA												

If removable, bolts used (describe other fastening) **NA**

8. Type of jacket **NA** Jacket closure **(Mat'l Spec. No., Grade, Size, No.)**
 (Describe as ogee & 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
1	32" OD	1'-4-1/8"	SA-240 316L		5/16"	1/16"	1	SPOT	85%	NONE	NA	85%	NONE	NA
1	32" OD	0'-8"	SA-240 316L		5/16"	1/16"	1	SPOT	85%	NONE	NA	85%	NONE	NA
NA														

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.
(a)	END	2-3/8"	1/16"	NA	NA	NA	NA	NA	37-5/8"	NA	NA	NONE	NA	85%
	END	2-3/8"	1/16"	NA	NA	NA	NA	NA	37-5/8"	NA	NA	NONE	NA	85%

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