

Job #  
2219

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

SWENSON  
PO# SL-1401

102279

ES215

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 (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. |  |
| (a) NA                       |           |       |        |         |            |            |               |          |                  |         |            |                  |      |  |
| (b) NA                       |           |       |        |         |            |            |               |          |                  |         |            |                  |      |  |

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

8. Type of jacket NA Jacket closure \_\_\_\_\_  
(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, None | 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.)