

FAA# 5001-2017-0400
SAP# 66416553

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

1. Manufactured and certified by OHMSTEDE LTD. 12415 HIGHWAY 225 LA PORTE, TEXAS 77571
2. Manufactured for INVISTA S.A.R.L., P.O. BOX 982255, EL PASO, TX 79998 (Name and address of Manufacturer)
3. Location of installation INVISTA S.A.R.L., 12455 STRANG ROAD, LA PORTE, TX 77571 (Name and address of Purchaser)
4. Type: Horizontal Heat Exchanger (Name and address) 328446 328446 1432 2014
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 2010 Edition, 2011 Addenda 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): 2 (b) Overall length (ft & in.): 20' - 1 3/4" *

| No. | Diameter, in. | Length (ft & in.) | Material Spec./Grade or Type | Thickness | | Long. Joint (Cat. A) | | | Circum. Joint (Cat. A, B, & C) | | | Heat Treatment | |
|-----|---------------|-------------------|---------------------------------|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| | | | | Nom. | Corr. | Type | Full, Spot, None | Eff. | Type | Full, Spot, None | Eff. | Temp. | Time |
| 1 | 20" O.D. | 20' - 1 3/4" | SA-106-B | 3/8" | 1/8" | - | Seamless | 1 | 1 | Full | 1 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | | | | | | | | | | | | | | | | |
|---------------|---------------|---|-------|--------|---------|------------|------------|---------------|----------|------------------|---------|---|------------------|------|--|--|
| 7. Heads: (a) | | SA-403 WP-304/304L | | | | | | | | | | (b) | | | | |
| | | (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp | | | | | | | | | | (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp | | | | |
| | Location (Top | Thickness | | Radius | | Elliptical | Conical | Hemispherical | Flat | Side to Pressure | | Category A | | | | |
| | Bottom, Ends) | Min. | Corr. | Crown | Knuckle | Ratio | Apex Angle | Radius | Diameter | Convex | Concave | Type | Full, Spot, None | Eff. | | |
| (a) | END | 3/8" | 1/8" | - | 20" | - | - | - | - | - | - | - | - | - | | |
| (b) | - | - | 1/16" | - | - | - | - | - | - | - | X | - | - | - | | |

If removable bolts used (describe) 1/16" Corrosion Allowance confirmed

If removable, bolts used (describe other fastening) 1/16" Corrosion Allowance confirmed according to calculations

8. Type of jacket SA-193-B8 W/ 2ea. SA-194-8 (Mat'l Spec. No., Grade, size, No.)
Jacket closure (Describe as ogee & weld, bar, etc.)
- If bar, give dimensions: 225 psi at max. temp. 200 °F Min. design metal temp. 15 °F at 225 psi
9. MAWP (internal) (external) 225 psi
10. Impact test YES - IMPACT TESTED @ 15 MDMT PER UHA-51 at test temperature of - °F
11. Hydro., ~~press~~ or ~~test~~ test press. 371 (Indicate yes or no and the component(s) impact tested) Proof test

- Items 12 and 13 to be completed for tube sections.
12. Tubesheet: SA-240 S31803/S32205 21 9/16" 1 7/8" 3/16" Weld
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)
13. Tubes: SA-789 S31803/S32205 3/4" .065" (mw) 282 Straight - 20' - 5 1/2"
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

- 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): 1 (b) Overall length (ft & in.): 0' - 8"
- | No. | Diameter, in. | Length (ft & in.) | Material
Spec./Grade or Type | Thickness | | Long. Joint (Cat. A) | | | Circum. Joint (Cat. A, B, & C) | | | Heat Treatment | |
|-----|---------------|-------------------|---------------------------------|-----------|-------|----------------------|------------------|------|--------------------------------|------------------|------|----------------|------|
| | | | | Nom. | Corr. | Type | Full, Spot, None | Eff. | Type | Full, Spot, None | Eff. | Temp. | Time |
| 1 | 20" O.D. | 0' - 8" | SA-312 TP304/304L | 3/8" | 1/16" | 1 | Spot | 85 | 1 | Spot | 85 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - |

15. Heads: (a) SA-403 WP-304/304L (b) SA-193-B8 W/ 2ea. SA-194-8
- | Location (Top/Bottom, Ends) | Thickness | Radius | | | | Ratio | Conical
Apex Angle | Hemispherical
Radius | Flat
Diameter | (Mat'l Spec. No., Grade or Type) H.T. - Time & Temp | | | | |
|-----------------------------|-----------|--------|-------|-------|---------|-------|-----------------------|-------------------------|------------------|---|------------|------|------------------|------|
| | | Min. | Corr. | Crown | Knuckle | | | | | Side to Pressure | Category A | | | |
| (a) END | 3/8" | 1/16" | - | 20" | - | - | - | - | - | Convex | Concave | Type | Full, Spot, None | Eff. |
| (b) | - | - | - | - | - | - | - | - | - | - | X | - | - | - |

If removable, bolts used (describe other fastening)

(Mat'l Spec. No., Grade, size, No.)

16. MAWP 160 psi at max. temp. 400 °F Min. design metal temp. 15 °F at 160 psi.
(internal) (external) (internal) (external)
17. Impact test YES - IMPACT TESTED @ 15 MDMT PER UHA-51 at test temperature of °F
(internal) (external)
18. Hydro. ~~press~~ test press. 299 (Indicate yes or no and the component(s) impact tested)
Proof test

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 |
|--------------------------------------|-----|------------------|-------------|-------------------|-----------------|------------------|-------|---------------|--------------|--------|---------------|
| | | | | Nozzle | Flange | Nom. | Corr. | Material | Nozzle | Flange | (Insp. Open.) |
| Inlet / Outlet | 2 | 3"-150# | RFSO | SA-312 TP304/304L | SA-182F304/304L | .300" | 1/16" | - | WELD | WELD | TS |
| Inlet / Outlet | 2 | 8"-150# | RFSO | SA-106-B | SA-106 | .322" | 1/8" | - | WELD | WELD | SS |
| Vent / Drain | 2 | 3/4"-6M# | CPLG | - | SA-182F304/304L | - | 1/16" | - | - | WELD | TS |
| - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - |

20. Supports: Skirt NO Lugs 2 Legs - Others 2 (HORIZONTAL) Attached WELDED TO SHELL
(Yes or No) (No.) (No.) (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:
(List the name of part, item number, mfg's. name and identifying number)

22. Remarks: CUSTOMER ITEM NO: 5001-7017-04

* 6 - F&F EXPANSION JOINT CREATED USING (2) 30" O.D. X 19 1/4" I.D. X 1/2" thk. SA-516-70 HEADS.

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.

18,673

Expires

06/27/16

Date 03/17/14

Name OHMSTEDE LTD.

(Manufacturer)

Signed

(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 Texas and employed by OneCIS Insurance Co. of Lynn, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 03/17/14, 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. 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. Furthermore, neither the Inspector nor his 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 03/17/14

Signed

(Authorized Inspector)

Commissions

NB# 14513 AR, TX 1922
(Nat'l Board incl. endorsements, 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.

Expires

Date

Name

(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 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 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. Furthermore, neither the Inspector nor his 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

(Authorized Inspector)

Commissions

(Nat'l Board incl. endorsements, State, Province and No.)