

FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS Job No: 13700
 as required by the provisions of the ASME Code rules, Section VIII, Division 1 (1) 18"-320 Sq. Ft. Heat Exchanger

1. Manufactured and certified by Perry Products Corporation, Mt. Laurel Road, Hainesport, NJ 08036
(name and address of manufacturer)

2. Manufactured for Hoechst Celanese Corporation, 500 Washington Street, Coventry, RI 02816
(name and address of purchaser)

3. Location of installation SAME
(name and address)

4. Type: Horizontal B-4403 -- D-89198-1 3926 1989
(horiz. or vert. tank) (mfr's serial no.) (CRN) (drawing no.) (Nat'l Bd. no.) (year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction and workmanship conform to ASME Code, Section VIII, Division 1: 1986
(year)

1988 -- --
(addenda (Date)) (Code Case no.) (special service per UG-120(d))

Items 6-11 inclusive to be completed for single end vessels, pockets of double end vessels, or shells of heat exchangers.

6. Shell: SA240-T316 .135" 0 1'-6" O.D. 8'-3-7/8"
(mat'l (spec. no., grade)) (nom. thickness (in.)) (corr. allow. (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))

7. Seams: DBW -- 70 -- -- -- 2
(long. (dbl., singl.)) (RT (spot or full)) (eff. (%) (HT temp. (°F)) (time) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)

8. Heads: (a) -- (b) --
(mat'l (spec. no., grade)) (mat'l (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or concave)
(a)	--	--	--	--	--	--	--	--	--	--
(b)	--	--	--	--	--	--	--	--	--	--

If removable, bolts used (describe other fastenings): --

9. Type of jacket: -- Proof test: --

10. Jacket closure: -- If bar, give dimensions: -- If bolted, describe or sketch.

11. MAWP: 90 at max. temp. 390 Min design metal temp.: 10 at 90 Hydro. ~~pressure~~ test pressure 140
(psi) (°F) (°F) (psi) (psi)

Items 12 and 13 to be completed for tube sections.

12. Tubesheets: SA240-T316 18" dia. 1-1/8" "0" Welded
(stationary mat'l (spec. no., gr.)) (dia. (in.) (subject to pressure)) (nom. thickness (in.)) (corr. allow. (in.)) (attachment (welded, bolted))

Body Flanges: SA515 GR 70 C/S 18-1/8" ID x 22-1/8" OD 1 1/2" "0" Retained by tube sheet
(floating mat'l (spec. no., gr.)) (dia. (in.)) (nom. thickness (in.)) (corr. allow. (in.)) (attachment)

13. Tubes: SA249-T316 3/4" 18 GA. 196 straight
(mat'l (spec. no., gr.)) (OD (in.)) (nom. thickness (in. or gauge)) (no.) (type (straight or U))

Items 14-17 inclusive to be completed for tube channels of heat exchangers.

14. Shell: SA53 GR B C/S .312 1/16" 1'-6" O.D. 1 @ 6", 1 @ 7" 1 @ 8"
(mat'l (spec. no., gr.)) (nom. thickness (in.)) (corr. allow. (in.)) (dia. ID (ft. & in.)) (length (overall) (ft. & in.))

15. Seams: ERW -- 85 -- -- DBW 1 each
(long. (dbl., singl.)) (RT (spot or full)) (eff. (%) (HT temp. (°F)) (time) (girth (dbl., singl.)) (RT (spot, partial, or full)) (no. of courses)

16. Heads: (a) SA516 GR 70 C/S (b) SA516 GR 70 C/S
(mat'l (spec. no., grade)) (mat'l (spec. no., grade))

	Location (top, bottom, ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (convex or concave)
(a)	R. End	.054"	"0"	--	--	2:1	--	--	--	Concave
(b)	L. End	.054"	"0"	--	--	2:1	--	--	--	Concave

If removable, bolts used (describe other fastenings): (32) 5/8" diameter x 6" long C/S studs SA193 B7
(mat'l. spec. no., gr., size, no.)

17. MAWP: 90 at max. temp. 390 Min design metal temp.: 10 at 90 Hydro. ~~pressure~~ test pressure 135
(psi) (°F) (°F) (psi) (psi)

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18. Nozzle, inspection and safety valve openings:

Purpose (inlet, outlet, drain, etc.)	Number	Dia or Size	Type	Mat'l	Nom. Thickness	Reinforcement Material	How Attached	Location
Inlet and Outlet	2	1 1/2"	CL-150	SA106B CS	Sch. 80	Inherent	Welded	Bonnet
Outlet	1	10"	CL-150	SA312-T316	Sch. 10	Inherent	Welded	Shell
Inlet	1	8"	CL-150	SA312-T316	Sch. 10	Inherent	Welded	Shell
Outlet	1	1 1/2"	CL-150	SA312-T316	Sch. 10	Inherent	Welded	Shell
Vent	1	3/4"	Half Cplg.	SA403-T316L	1000#	Inherent	Welded	Shell
Vent & Drain	2	3/4"	Half Cplg.	SA103 C/S	1000#	Inherent	Welded	Bonnet

19. Supports: Skirt Lugs 2 Legs Other Attached Welded to main shell
(yes or no) (no) (no) (describe) (where and how)

20. Remarks: Manufacturers' Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: _____
(name of part, item number, mfr's name and identifying stamp)

Unit not designed for lethal service. Unit designed for non-corrosive service. Unit hydro-tested in horizontal position. Exempt from impact testing per Code paragraphs UG-20 (b), UCS-66 and UHA-51.

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. 4328 expires Dec. 31, 1991

Date 9-26-89 Name Perry Products Corporation Signed J. N. J. J. J.
(manufacturer) (representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by Perry Products Corporation at Hainesport, NJ

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the state or province of NJ and employed by Lumbermens Mutual Casualty Co. of Long Grove, IL

of _____ have inspected the pressure vessel described in this Manufacturers' Data Report on 9-26-89, 1989, 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 the Manufacturers' 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 9/26/89 Signed [Signature] Commissions NO 7059, NJ 976
(Authorized Inspector) (Nat'l. Bd. (incl. endorsements) state, prov. and no.)

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the field assembly construction of all parts of this vessel conforms with the requirements of Section VIII, Division 1 of the ASME BOILER AND PRESSURE VESSEL CODE.

"U" Certificate of Authorization no. _____ expires _____, 19____

Date _____ Name _____ Signed _____
(assembler that certified and constructed field assembly) (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 _____

of _____ have compared the statements in this Manufacturers' 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 that 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 the Manufacturers' 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 _____ Commissions _____
(Authorized Inspector) (Nat'l. Bd. (incl. endorsements) state, prov. and no.)