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 Richard Stihler GmbH & Co. KG, Dreyspringstr. 18, 7630 Lahr/Schw. West Germany
(Name and address of manufacturer)

2. Manufactured for BHS-Sonthofen Maschinenfabrik, D-8972 Sonthofen, West Germany
(Name and address of purchaser)

3. Location of installation American Hoechst Corp., Rhode Island Work, 129 Quidnic Street, 02816 Coventry, Rhode Island, USA
(Name and address)

4. Type Vertical Vessel (Horiz. or vert., tank) | 10790 (Mfgr's serial No.) | N.A. (CRN) | 0-120586 (Drawing) | 199 (Nat'l. Bd. No.) | 1986 (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 Rules, Section VIII, Division 1 1983 (Year)

Summer 1985 (Addenda (date)) | N.A. (Code Case No.) | N.A. (Special service per UG 120(d))

Items 6-11 incl. to be completed for single wall vessels, jackets of jacketed vessels, or sheets of heat exchangers

6. Shell: SA-240 Gr.316Ti (Matl (Spec No., Grade)) | 5 (Nom. thk. (mm)) | 0 (Corr. allow. (mm)) | 1200 (Diam. I.D. (mm)) | 480 (Length (Overall) (mm))

7. Seams: Welded dbl. butt (Long. (Dbl., Sngl.)) | Spot (R.T. (Spot or Full)) | 85 (Eff. (%)) | N.A. (H.T. Temp. (°C))

N.A. (Time) | Welded dbl. butt (Girth (Dbl., Sngl.)) | Spot (R.T. (Spot, Partial, or Full)) | 1 (No. of Courses)

8. Heads: (a) Matl. SA-240 Gr. 316 Ti (Spec. No., Grade) (b) Matl. N.A. (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)	Bottom	3.8	0	N.A.	120	N.A.	45°	N.A.	N.A.	Conc./Convex
(b)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

If removable, bolts used (describe other fastenings) N.A. (Matl., Spec. No., Gr., Size, No.)

9. Type of Jacket Fig. 9-2 Type Proof Test N.A.

10. Jacket Closure Fig.9-5(b-2)&(g-2) (Describe as ogee & weld, bar, etc.) If bar, give dimensions N.A. If bolted, describe or sketch.

11. MAWP 500/Full Vac. kPa at max. temp. 200 °C. Min. temp. (when less than -30°C) N.A. °C.
Hydro., pneu., or comb. test press. 900 kPa.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: N.A. (Stationary Matl (Spec. No., Gr.)) | N.A. (Diam. (mm) (Subject to pressure)) | N.A. (Nom. Thk. (mm)) | N.A. (Corr. allow. (mm)) | N.A. (Attach. (Welded, Bolted))

N.A. (Floating Matl (Spec. No., Gr.)) | N.A. (Diam. (mm)) | N.A. (Nom. Thk. (mm)) | N.A. (Corr. allow. (mm)) | N.A. (Attach.)

13. Tubes: N.A. (Matl (Spec. No., Gr.)) | N.A. (O.D. (mm)) | N.A. (Nom. Thk. (mm)) | N.A. (Number) | N.A. (Type (Straight or "U"))

Items 14-17 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers

14. Shell: SA-240 Gr. 316 Ti (Matl. (Spec. No., Grade)) | 10 (Nom. Thk. (mm)) | 0 (Corr. allow. (mm)) | 1130 (Diam. I.D. (mm)) | 556 (Length (Overall) (mm))

15. Seams: Welded dbl. butt (Long. (Dbl., Sngl.)) | Spot (R.T. (Spot or Full)) | 85 (Eff. (%)) | N.A. (H.T. Temp. (°C))

N.A. (Time) | Welded dbl. butt (Girth (Dbl., Sngl.)) | Spot (R.T. (Spot, Partial, or Full)) | 1 (No. of Courses)

16. Heads: (a) Matl. SA-240 Gr. 316 Ti (Spec. No., Grade) (b) Matl. SA-240 Gr. 316 Ti (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)	Top	5.01	0	1150	115	N.A.	N.A.	N.A.	N.A.	Conc./Convex
(b)	Bottom	9.4	0	N.A.	115	N.A.	45°	N.A.	N.A.	Conc./Convex

If removable, bolts used (describe other fastenings) SA-193 Gr.B7 , 3/4" - 10 UNC, 40 off (Matl., Spec No., Gr., Size, No.)

17. MAWP 600/Full Vac. kPa at max. temp. 250 °C. Min. temp. (when less than -30°C) N.A. °C.
Hydro., pneu., or comb. test press. 1050 kPa.

Form U-1 (Back)

18. Nozzles, Inspection and Safety Valve Openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diam or Size	Type	Matl	Nom. Thk.	Reinforcement Matl	How Attached	Location
Safety valve	1	2"	Cl.150flg	SA-312 TP316L	3.9	N.A.	Welded	Head
Inl.,Intr.,Res.	5	2"	Cl.150flg	SA-312 TP316L	3.9	N.A.	Welded	Shell&head
Filter	1	ID. 230	UW-16.1(c)	SA-182 F316L	20.0	N.A.	Welded	Head
Inl./Outl	2	1"	Cl.150flg	SA-312 TP316L	3.4	N.A.	Welded	Jacket
Control	1	6"	UW-16.1(d)	SA-182 F316L	62.7	N.A.	Welded	Shell
Outlet	1	ID.400	UW-16.1(j)	SA-515Gr.60	77.5	N.A.	Welded	Cone

19. Supports: Skirt No (Yes or no) Lugs 4 (No.) Legs N.A. (No.) Other N.A. (Describe) Attached Welded to head & head flange (Where and how)

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

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. 14,513 expires March 22, 19 87.

Date Sept. 18,1986 Co. name Richard Stihler GmbH & Co. KG (Manufacturer) Signed _____ (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by RICHARD STIHLER GmbH & Co. KG at Dreyspringstr.18, 7630 Lahr,West Germany

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of NEW JERSEY and employed by Lloyd's Reg. Ind. Serv. (Ins.) Inc. of NEW YORK have inspected the pressure vessel described in this Manufacturer's Data Report on SEPTEMBER 19, 19 86, 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 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 SEPT. 19, 86 Signed _____ (Authorized Inspector) Commissions 8654 NEW JERSEY 665 (Nat'l Board, State, Province and No.)

G.P. SCHONBERG

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 _____ Co. name _____ (Assembler that certified and constructed field assembly) Signed _____ (By 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/or the State or Province of _____ and employed by _____ 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 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 _____ kPa. 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, Prov., and No.)