

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

1. Manufactured by Paul Mueller Company, Springfield, Missouri
(Name and address of manufacturer)

2. Manufactured for Merck, Shaup & Dohme, Montgomery County, West Point, Pa. 19486
(Name and address of purchaser)

3. Location of Installation Unknown
(Name and address)

4. Type Vert. Tank Vessel No. 141106-1 N/A
(Horiz. or vert. tank) (Mfg's Serial No.) (CRN) (Drawing)
4528 Year Built 1977
(Nat'l Brd No.)

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 1974 and Addenda to 12-31-76 and Code Case no. N/A
(Year) (Date)

Special service per UG-120(d) _____

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, mfg's name and identifying stamp)

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

6. Shell: Material SA240 316L Nominal Thickness .250 in. Corrosion Allowance 0 in.
(Spec. No., Grade)

Diam. 6 ft 0 in. Length 2 ft 6 in.

CERTIFICATE OF 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.

Date 5-3-77 Signed Paul Mueller Company by Douglas W Morgan
(Manufacturer) (Representative)

"U" Certificate of Authorization No. 5594 expires January 15, 19 80.

CERTIFICATE OF SHOP INSPECTION

Vessel made by Paul Mueller Company at Springfield, Missouri

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 H.S.B. I & I Co.

of Hartford, Conn. have inspected the pressure vessel described in this Manufacturers' Data Report on 4-12-77, 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 May 3 1977
 Signed James R. Hudson Commissions Natl. Bd. 7411
(Inspector) (Nat'l Board, State, Province and No.)

CERTIFICATE OF COMPLIANCE FOR FIELD WORK

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.

Date _____ Signed _____ by _____
(Manufacturer) (Representative)

"U" Certificate of Authorization No. _____ expires _____, 19 _____.

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 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 this 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 Board, State, Province and No.)

HEAT TRANSFER SURFACE

7. Seams: Longitudinal Welded, Lap, Fillet R.T. None Efficiency 55 %
(Welded, Dbl., Sngl. Lap, Butt) (Spot or Full)

H.T. Temp None F Time _____ Girth Welded, Lap, Fillet
(Welded, Dbl., Sngl. Lap, Butt)

R.T. None No. of Courses 1
(Spot, Partial or Full)

8. Heads: (a) Material SA240 316L (Spec. No., Grade) (b) Material _____ (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a) <u>Bottom</u>	<u>.217"</u>	<u>0</u>	<u>72"</u>	<u>5"</u>	
(b) _____					

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) _____			<u>Concave/Convex</u>
(b) _____			

If removable, bolts used (describe other fastenings) _____ (Material, Spec. No., Gr., Size, No.)

9. Type of Jacket _____ Proof Test _____

10. Jacket Closure _____ If bar, give dimensions _____
(Describe as ogee & weld, bar, etc.)

If bolted, describe or sketch.

11. Constructed for max. allowable working pressure 55 psi at max. temp. 350 F Min. temp. (when less than -20 F) _____ F. Hydrostatic, ~~XXXXXX~~ test pressure 95 psi.

Items 12 and 13 to be completed for tube sections

12. Tubesheets: Stationary—Material _____ (Spec. No., Gr.) Diam. _____ in. (Subject to pressure)

Nominal Thickness _____ in. Corrosion Allowance _____ in. Attachment _____ (Welded, Bolted)

Floating—Material _____ (Spec. No., Gr.) Diam. _____ in.

Nominal Thickness _____ in. Corrosion Allowance _____ in.

Attachment _____

13. Tubes: Material _____ (Spec. No., Gr.) O.D. _____ in. Nominal Thickness _____ in. or gauge

Number _____ Type _____ (Straight or "U")

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

14. Shell: Material SA240 316L (Spec. No., Gr.) Nominal Thickness .250 in. Corrosion Allowance 0 in.

Diam. 6 ft 0 in. Length 4 ft 6 in.

15. Seams: Longitudinal Welded, Dbl, Butt R.T. See remarks Efficiency 70 %
(Welded, Dbl., Sngl. Lap, Butt) (Spot or Full)

H.T. Temp None F Time _____ Girth Welded, Dbl, Butt
(Welded, Dbl., Sngl. Lap, Butt)

R.T. See Remarks No. of courses 1
(Spot, Partial or Full)

16. Heads: (a) Material SA240 316L (Spec. No., Grade) (b) Material SA240 316L (Spec. No., Grade)

Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio
(a) <u>Top</u>	<u>.208"</u>	<u>0</u>	<u>72"</u>	<u>5"</u>	
(b) <u>Bottom</u>	<u>.217"</u>	<u>0</u>	<u>72"</u>	<u>5"</u>	
(a) _____					
(b) _____					

Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) _____			<u>Concave/Convex</u>
(b) _____			<u>Concave/Convex</u>

If removable, bolts used (describe other fastenings) _____ (Material, Spec. No., Gr., Size, No.)

17. Constructed for max. allowable working pressure 50 psi at max. temp. 350 F. Min. temp. (when less than -20 F) _____ F. Hydrostatic, ~~XXXXXX~~ test pressure 77 psi.

Items below to be completed for all vessels where applicable

18. Safety Valve Outlets: Number _____ Size _____ Location Customer to install in line

19. Nozzles:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Nominal Thickness	Reinforcement Material	How Attached
<u>Inlet-Agitator</u>	<u>2-1</u>	<u>4"-8"</u>	<u>Pipe</u>	<u>SA312 316L</u>	<u>Sch 40</u>	<u>SA240 304</u>	<u>Welded</u>
<u>Inlet</u>	<u>2</u>	<u>2"</u>	<u>Pipe</u>	<u>SA312 316L</u>	<u>.188"</u>	<u>N/A</u>	<u>Welded</u>
<u>Inlet</u>	<u>1</u>	<u>2.5"</u>	<u>Pipe</u>	<u>SA312316L</u>	<u>.190"</u>	<u>N/A</u>	<u>Welded</u>
<u>Inlet-Outlet</u>	<u>2-2</u>	<u>1.5"</u>	<u>Pipe</u>	<u>SA312304</u>	<u>Sch 40</u>	<u>N/A</u>	<u>Welded</u>
<u>Vent-Drain</u>	<u>2-1</u>	<u>.5"</u>	<u>Pipe</u>	<u>SA312304</u>	<u>Sch 40</u>	<u>N/A</u>	<u>Welded</u>

20. Inspection Openings: 1 Manholes No. _____ Size 18" Location Top Head

Handholes No. _____ Size _____ Location _____

Threaded No. _____ Size _____ Location _____

21. Supports: Skirt No (Yes or no) Lugs _____ (No.) Legs 4 Other _____ (Describe)
 Attached to bottom head and lower shell welded. (Where and how)

22. Remarks: Vessel is a 500 gallon tank, contents of which are unknown. It is designed to operate at full vacuum. Both heads were full radiographed, shell had no radiograph. Vessel outlet is a flange Ladish No. 32A-121 316L. Heat transfer surface has a volume of 1.29 cu. ft. and an area of 47 sq. ft. It uses steam ad a heating medium.

VESSEL