FORM U-1 MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS

As required by the Provisions of the ASME Code Rules F-2100-A1

1. Manufactured by Camden Copper Works, Camden, New Jersey (Name and address of Manufacturer)

2. Manufactured for Hercules, Inc., Wilmington, Delaware (Name and address of Purchaser) #104107

3. Type Horiz. (Horiz. or Vert.) Kind Heat Exch. (Tank, Jacketed, Heat Exch.) Vessel No. (67-3734-15) (Mfrs. Serial) (State & State No.) Natl. Bd. No. 607 Yr. Built 1967

Items 4–9 incl. to be completed for single wall vessels (such as ~~air tanks, jackets of jacketed vessels, or~~ shells of heat exchangers.

4. SHELL: Material SA240 316 (Kind and Spec. No.) T.S. 75,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness 1/4 In. Corrosion Allowance 0 In. Diam. 2 Ft 7½ In. Length 80 1/8" FF In.

5. SEAMS: Long Butt (Welded, Dbl., Single, Lap, Butt) H.T. no (Yes or No)[1] X.R. spot (Spot or Complete) Sectioned no (Yes or No) Efficiency 85 %

Girth Butt H.T. no X.R. none Sectioned no No. of Courses 2

If riveted describe seams fully on reverse side of form.

6. HEADS (a) Material ____ T.S. ____ (b) Material ____ T.S. ____

Location (Top, bottom, ends)	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) See Tube Sheets								
(b)								

If removable, bolts used ____ (Material, Spec. No., T.S., Size, Number) Other fastening ____ (Describe or Attach Sketch)

7. STAYBOLTS: ____ (Material) If hollow ____ (Size of Hole) Attachment ____ (Threaded, Welded) Pitch ____ (Horiz.) X ____ (Vert.) Diam. ____ (Nominal)

8. JACKET CLOSURE: ____ (Describe as ogee & weld, bar, etc. If bar, give dimensions, if bolted, describe or sketch)

9. Constructed for max. allowable working press[2] 100 psi at max. temp. 300 °F. Min. temp. (when less than −20°) -- °F. Hydrostatic / Pneumatic or Combination Test Press 150 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material SA240, 316 S/S (Kind & Spec. No.) Diam. 31 (Subject to Pressure) In. Thickness 1-1/2 In. Attachment welded (Welded, Bolted)

Floating. Material none (Kind & Spec. No.) Diam. ____ In. Thickness ____ In. Attachment ____

11. TUBES: Material SA249 304L (Kind & Spec. No.) O.D. 3/4 In. Thickness 16 Inches or Gage Number 840 Type straight (Straight or U)

Items 12–15 incl. to be completed for ~~inner chambers of jacketed vessels, or~~ channels of heat exchangers.

12. SHELL Material SA285C Stl (Kind and Spec. No.) T.S. 55,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness 3/8 In. Corrosion Allowance 1/16 Diam. 2 Ft 7½ In. Length 0' 7" Ft. ½ In.

13. SEAMS: Long Butt (Welded, Dbl., Single, Lap, Butt) H.T. no (Yes or No)[1] X.R. spot (Spot or Complete) Sectioned no (Yes or No) Efficiency 85 %

Girth Butt H.T. no X.R. none Sectioned no No. of courses 2

If riveted describe seams fully on reverse side of form.

14. HEADS (a) Material ____ T.S. ____ (b) Material ____ T.S. ____ (c) Material ____ T.S. ____

Location	Thickness	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a) Top, bottom, ends								
(b) Channel	2	with 3/4 x 6" ribs, @ 90° welded					30-3/4	flat
(c) Floating Return End	2						30-3/4	

If removable, bolts used (a) ____ (Material, Spec. No., T.S., Size, Number) (b) Stl, SA193B7, 125,000, 5/8, 32

(c) same as (b) Other fastening ____ (Describe or Attach Sketch)

15. Constructed for max. allowable working press 75 psi at max. temp. 300 °F. Min. temp. (when less than −20°) -- °F. Hydrostatic / ~~Pneumatic or~~ Combination Test Press 113 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number elsewhere in system Location ____

17. NOZZLES

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
A,B	2	6"	S.O.	SA53B Stl	Std.Wt.	none	welded
C	1	10x6"	L.J.	SA312,316	"	"	"
D	1	6"	"	"	"	"	"
E	1	3"	"	"	"	"	"

[1] If postweld heat-treated. [2] List under remarks other internal or external pressures with coincident temperature when applicable.

(Over)

FORM U-1 (back)

18. INSPECTION OPENINGS: Manholes, No. none Size _____ Location _____
Handholes, No. none Size _____ Location _____
Threaded, No. none Size _____ Location _____

19. SUPPORTS: Skirt no (Yes or No) Lugs none (Number) Legs none (Number) Other saddles (Describe) Attached welded to shell (Where Welded)

20. REMARKS: This vessel is an oxidizer condenser for non-lethal service. The shell of this vessel is equipped with an expansion joint of flanged and flued heads designed and fabricated per code case 1177-5. The underside of the vessel shell is equipped with a longitudinal heating jacket fabricated from 12" 20.7# ~~xx~~ VA-36 carbon steel channel.

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

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 Unfired Pressure Vessels.

Date April 17 19 67 Signed Camden Copper Works (Manufacturer) By Phillip L. Dunne

Certificate of Authorization Expires 12/31/67

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Camden Copper Works at Camden, New Jersey

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of New Jersey and employed by Hartford Steam Boiler I & I of Hartford, Conn. have inspected the pressure vessel described in this manufacturer's data report on _____ 19 67, and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

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 4/17 19 67

_____ Commissions NB-2907
Inspectors Signature Nat'l Board or State and No.

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 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 the applicable sections of the ASME Boiler and Pressure Vessel Code. 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 _____ 19 _____

_____ Commissions _____
Inspector's Signature Nat'l Board or State and No.

Printed in U.S.A. (7/66)

This Form is obtainable from the ASME, 345 E. 47th St., New York, N.Y. 10017