

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 **CUST-O-FAB, INC., 8888 WEST 21st STREET, SAND SPRINGS, OKLAHOMA 74063**
(Name and address of Manufacturer)

2. Manufactured for **ACRADIAN FERTILIZER, L.P. MILLINGTON, TENNESSEE 38053**
(Name and address of Purchaser)

3. Location of installation **ACRADIAN FERTILIZER, L.P. MILLINGTON, TENNESSEE 38053**
(Name and address)

4. Type: **HORIZONTAL** **HEAT EXCHANGER** **94-032**
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.)
NONE **94-032P-1, REV. 1** **3486**
(CRN) (Drawing No.) (Nat'l. Bd. No.)
5. ASME Code, Section VIII, Div. 1 **1992/1992** **NONE** **NONE**
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): **TWO** (b) Overall length (ft. & in.): **16'-0"**

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, C)			Heat Treatment	
No.	Diameter, in.	Length (ft. & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
2	36" ID	8'-0"	SA-516-70N		1 1/8"	1/8"	1	SPOT	.85	1	SPOT	.85	1125	1 1/4 Hr

7. Heads: (a) **SA-516-70N, 1 1/4 Hr AT 1125 DEG F** (b) **SA-105N, 1 1/4 Hr AT 1125 DEG F**
(Mat'l Spec. No., Grade or Type) H. T. - Time & Temp. (Mat'l Spec. No., Grade or Type) H. T. - Time & Temp.

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	END	1 1/8"	1/8"			2:1					xxxx	S	NONE	.85
(b)	END	44 1/8" OD x 36" ID x 6 3/8" THK ASME CODE HUB FLANGE												

If removable, bolts used (describe other fastening) **NONE**
(Mat'l Spec. No., Grade, size, No.)

8. Type of jacket **NONE** Jacket closure **NONE**
(Describe as ogee & weld, bar, etc.)
If bar, give dimensions **NONE** If bolted, describe or sketch.

9. MAWP **664** **---** psi at max. temp. **750** **---** °F Min. design metal temp. **-10** °F at **704** psi.
(internal) (external) (internal) (external)

10. Impact test **NO, EXEMPT PER UCS-66, UCS-67 & UCS-68**
(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneum. or comb. test press. **1056** Proof test **NONE**

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: **SA-516-70N** **36 7/8"** **5"** **1/8", 3/16"** **BOLTED**
Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)
NONE
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment:

13. Tubes: **SA-179** **3/4"** **.085"(MIN)** **500** **U-TUBES**
Mat'l Spec. No., Grade or Type O.D., in. Nom. thk., in. or gauge Number Type (Straight or U)

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): **ONE** (b) Overall length (ft. & in.): **1'-6 1/4"**

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B, C)			Heat Treatment	
No.	Diameter, in.	Length (ft. & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	36" ID	1'-6 1/4"	SA-516-70N		1 1/8"	1/8"	1	SPOT	.85	1	SPOT	.85	1125	1 1/4 Hr

15. Heads: (a) **SA-516-70N, 1 1/4 Hr AT 1125 DEG F** (b) **SA-105N, 1 1/4 Hr AT 1125 DEG F**
(Mat'l Spec. No., Grade or Type) H. T. - Time & Temp. (Mat'l Spec. No., Grade or Type, H. T. - Time & Temp.

(c) **SA-105N, 1 1/4 Hr AT 1125 DEG F**
(Mat'l Spec. No., Grade or Type) H. T. - Time & Temp.

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	CHN CVR	5 1/4"	3/16"						37 1/4"			S		1.0
(b)	END	44 1/8" OD x 36" ID x 6 3/8" THK ASME CODE HUB FLANGE												
(c)	END	44 1/8" OD x 36" ID x 6 3/8" THK ASME CODE HUB FLANGE												

If removable, bolts used (describe other fastening) (a) & (c) each, **SA-193-B7, 1 1/8" Dia, 52 / SA-194-2H, Hex Nuts, 104**
(Mat'l Spec. No., Grade, Size, No.)

16. MAWP 652 psi at max. temp. 750 °F Min. design metal temp. -10 °F at 691 psi.
 (internal) (external) (internal) (external)
17. Impact test NO, EXEMPT PER UCS-66, UCS-67 & UCS-68
 (Indicate yes or no and the component(s) impact tested)
18. Hydro., ~~proof~~, ~~or comb.~~ test press. 1037 Proof test NONE

19. Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
CHAN INLET	1	8"	600# WN	SA-106B	SA-105N	.500"	1/8"	SA-516-70	WELDED	WELDED	TOP
CHAN OUTLET	1	8"	600# WN	SA-106B	SA-105N	.500"	1/8"	SA-516-70	WELDED	WELDED	BOTTOM
SHELL INLET	1	10"	600# WN	SA-106B	SA-105N	.593"	1/8"	SA-516-70	WELDED	WELDED	BOTTOM
SHELL OUTLET	1	10"	600# WN	SA-106B	SA-105N	.593"	1/8"	SA-516-70	WELDED	WELDED	TOP
AUX CONN	4	3/4"	CPLG	SA-105		6000#	1/8"		WELDED		
AUX CONN	4	1"	CPLG	SA-105		6000#	1/8"		WELDED		

20. Supports: Skirt NO Lugs NONE Legs TWO Others SADDLES 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)
NONE

22. Remarks: 36-192 TEMA TYPE "AFU" HEAT EXCHANGER
SERVICE: FEED GAS SATURATOR EXCHANGER
P.O. NO.: ATA-9310197-JEN ITEM NO.: E-4140
SAFETY RELIEF DEVICES LOCATED ELSEWHERE IN SYSTEM

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. 12768

Expires

APRIL 15, 19 96

Date 5/6/94 Name _____

CUST-O-FAB, INC.
 (Manufacturer)

Signed

[Signature]
 (Representative)

CERTIFICATE OF SHOP 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 OKLAHOMA and employed by COMMERCIAL UNION INSURANCE COMPANY of BOSTON, MA have inspected the pressure vessel described in this Manufacturer's Data Report on 5-11, 19 94, 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 5-9-94 Signed [Signature]

(Authorized Inspector)

Commissions

[Signature]
 (Nat'l Board incl. endorsement, 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 _____

,19 _____

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/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 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 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. endorsement, State, Province and No.)