

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

Item No. E-1778

1. Manufactured and certified by ALABAMA HEAT EXCHANGERS, INC., 5751 LaRue Steiner Road Theodore, AL 36582
 (Name and address of Manufacturer)
2. Manufactured for Tate and Lyle Sucralose, Inc., Rural Route 2, Box 16M, Industrial Road, McIntosh, AL 36553
 (Name and address of Purchaser)
3. Location of installation Tate and Lyle Sucralose, Inc., Rural Route 2, Box 16M, Industrial Road, McIntosh, AL 36553
 (Name and address)
4. Type: Horizontal Heat Exchanger AHE-859 5936A041 516 2004
 (Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 2001 / 2003 2429 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.): 13'-8.6875"

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&2	26"OD	13'-8.6875"	SA240-316L		.375"	.125"	1	Spot	85%	1	Spot	85%		

7. Heads: (a) _____ (b) _____
 (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)														
(b)														

If removable, bolts used (describe other fastening) _____
 (Mat'l Spec. No., Grade, size, No.)

8. Type of jacket _____ Jacket closure _____
 (Describe as ogee & weld, bar, etc.)

If bar, give dimensions _____ If bolted, describe or sketch.

9. MAWP 100 psi at max. temp. 350 °F Min. design metal temp. -20 °F at 100 psi.
 (internal) (external) (internal) (external)

10. Impact test No, UHA51(d)(1)(a) at test temperature of _____ °F
 (Indicate yes or no and the component(s) impact tested)

11. Hydro., ~~MAWP~~, ~~UHA51(d)(1)(a)~~ test press. 130 Proof test _____

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA240-316L 31.00" 1.75" .250" Welded
 Stationary (Mat'l Spec. No.) Dia., in. (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)

Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: SA249-316L 0.75" 16 ga. 578 Straight
 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'-0.00"

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	26.00"	1'-0.00"	SA240-316L		.250"	0.00"	1	Spot	85%	1	Spot	85%		

15. Heads: (a) SA240-316L (b) _____
 (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)	Ends					2:1					X			
(b)														

If removable, bolts used (describe other fastening) _____
 (Mat'l Spec. No., Grade, Size, No.)

16. MAWP 105 psi at max. temp. 350 °F Min. design metal temp. -20 °F at 105 psi.
(internal) (external) (internal) (external)

17. Impact test No, UHA51(d)(1)(a) at test temperature of _____ °F

(Indicate yes or no and the component(s) impact tested)

18. Hydro., ~~XXXX~~, ~~XXXXXX~~ test press. 137 Proof test _____

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	
Inlet/Outlet	2	2"150#	RFSO	SA312-316L	SA182-316L	.154"	0.00"	Inherent	16.1(e)	2.4(3)	Shell
Inlet/Outlet	2	2"150#	LJ	SA312-316L	SA105	.154	0.00"	Inherent	16.1(e)		Channel
Vent/Drain	4	3/4"3000#		SA182F-316L				Inherent	16.1(e)		Shell/Channel

20. Supports: Skirt No Lugs 2 Legs _____ Others (4) Saddles Attached Shell / Welded
(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: Exemptions per UG46(a). Vessel contents not specified.

Customer P.O. No. 4600040075

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. 31,066 Expires 6/10/2005

Date 5/10/2004 Name ALABAMA HEAT EXCHANGERS, INC. Signed [Signature]
(Manufacturer) (Representative)

CERTIFICATE OF SHOP 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 LA and employed by OneBeacon America Insurance Company of Boston, MA. have inspected the pressure vessel described in this Manufacturer's Data Report on 5/5/04, 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 5/17/04 Signed M. Shadix Commissions NB9240A, LA807
(Authorized Inspector) (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 _____

Date _____ Name _____ Signed _____
(Assembler) (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 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 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 _____ Commissions _____
(Authorized Inspector) (Nat'l Board incl. endorsement, State, Province and No.)