

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

Owner Item#  
E-204

Manufactured and certified by TIBERATE Ltd. 763 Chester St. Sarnia, ON N7S-5N2 Canada

(Name and address of Manufacturer)

Manufactured for Huntsman Corporation 2701 S. Range Road Marysville, Michigan 48040 U.S.A.

(Name and address of Purchaser)

Location of installation Huntsman Corporation 2701 S. Range Road Marysville, Michigan 48040 U.S.A.

(Name and address)

Type: Vertical Gas Cooler 5459A 5459-B1 R3 22 1997  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exch., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)  
ASME Code, Section VIII, Div. 1 95 Ed and 95 Add

Edition and Addenda (date)

Code Case No.

Special Service per UG-120(d)

ns 6 - 11 incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

Shell (a) No. of course(s): 2 (b) Overall length (ft & in.): 20'-0" TSA to TSB

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	3'-4" ID	10'-0"	SA-516-70	7/16"	1/8"	1	Spot	0.85	1	Spot	0.85		None
2	3'-4" ID	9'-5 3/4"	SA-516-70	7/16"	1/8"	1	Spot	0.85	1	Spot	0.85		None

Heads: (a) None

(b) None

(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)	N/A													
(b)														

removable, bolts used (describe other fastening) None

Type of jacket N/A

(Mat'l Spec. No., Grade, size, No.)

Jacket closure N/A

(Describe as ogee & weld, bar, etc.)

If bar, give dimensions N/A

MAWP 210 psi at max. temp. 365 °F Min. design metal temp. -2 °F  
(internal) (external) (internal) (external)

1. Impact test Exempt per UG-20 (f)

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

Hydro., pneu., or comb. test press. Hydro-315psig

Proof test N/A

ns 12 and 13 to be completed for tube sections.

1. Tubesheet: SA-240 TP-304

45 1/2" OD

3 1/4"

0

Welded

Stationary (Mat'l Spec. No.)

Dia., in. (subject to press.)

Nom. thk., in.

Corr. Allow., in.

Attachment (welded or bolted)

SA-240 TP 304

45 1/2" OD

3 1/4"

0

Welded

Floating (Mat'l Spec. No.)

Dia., in.

Nom. thk., in.

Corr. Allow., in.

Attachment

1. Tubes: SA-249 TP 304

1"

14 BWG

822

Straight

Mat'l Spec. No., Grade or Type

O.D., in.

Nom. thk., in. or gauge

Number

Type (Straight or U)

ns 14 - 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

1. Shell (a) No. of course(s): 2 (b) Overall length (ft & in.): 2'-3 3/16" Each Channel Ass'y

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	Note 1	1'-4"	SA-240-304	9/16"	0	1	Spot	0.85	1	Spot	0.85	None	
2	Note 1	1'-4"	SA-240-304	9/16"	0	1	Spot	0.85	1	Spot	0.85	None	

5. Heads: (a) None

(b) None

(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)	N/A													
(b)														

removable, bolts used (describe other fastening) SA-193 Gr. B7 3/4" Ø 76 per Channel Ass'y - 152 Total

(Mat'l Spec. No., Grade, Size, No.)



WWP 313 psi at max. temp. 212 °F Min. design metal temp. -20 °F at 313 psi.

(internal) (external) (internal) (external)

Impact test Exempt per UHA-51 (d)

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

Hydro., pneu., or comb. test press. Hydro-470psig

Proof test N/A

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	24"	300#WN	SA-182F304	Sch30	0		None		**	
Inlet/Outlet 2"	2	8"	300#WN	SA-106B	SA-105	XS	1/8"	SA-516-70	UW-16.1g	**	
em. Clean	2	4"	300#WN	SA-106B	SA-105	Sch120	1/8"	SA-516-70	UW-16.1g	**	
Drain/Vent	2	1"	300#WN	SA-106B	SA-105	XXS	1/8"	None	UW-16.1g	**	
mp. Conn.	1	3/4"	6000#CPLG		SA-105		1/8"	None	UW-16.1g		
ess. Conn.	1	3/4"	6000#CPLG		SA-105		1/8"	None	UW-16.1g		

Supports: Skirt No Lugs None Legs None Others 2-Supports Attached Welded to Shell  
(Yes or No) (No.) (No.) (Describe) (Where and How)

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)

Remarks: Note 1: These are cones 3'-4" ID x 1'-10 7/8" ID

\*\* - UW-16.1 butt weld

NOTE: No Inspection Openings Refer to UG-46(a)

#### 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. 28,487 Expires July 28

Date 7-04-24

Name TUBERATE Ltd.

Signed

(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 ONT and employed by M.C.C.R. of Ontario have inspected the pressure vessel described in this Manufacturer's Data Report on April 24, 1998, 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 7-1-24

Signed

Commissions 11396 BN ONTARIO #46

(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 \_\_\_\_\_, 19 \_\_\_\_\_

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.)