BRIGHTON CORPORATION

MANUFACTURERS' DATA REPORT FOR UNFIRED PRESSURE VESSELS
As Required by the Provisions of the A.S.M.E. Code Rules

1 Manufactured by BRIGHTON CORPORATION, 11861 MOSTELLER ROAD, CINCINNATI, OHIO 45241
(Name and address of Manufacturer)

2 Manufactured for QUAKER CHEMICAL CORPORATION, CONSHOHOCKEN, PENNSYLVANIA
(Name and address of Purchaser)

3 Type VERT. (Horiz. or Vert.) Kind JKTD TANK (Tank, Jacketed, Heat Exch.) Vessel No. A-3698 (Mfrs. Serial) (-) (State & State No.) Nat'l Bd. No. 1876 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 T304L (Kind of Spec. No.) T.S. 70,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness .093 in. Corrosion Allowance 0 in. Diam. 3 ft. 7 in. Length 2 ft. 11 in.

5 SEAMS: Long ____ (Welded, Dbl., Single, Lap, Butt) H.T. ____ (Yes or No) X.R. ____ (Spot or Complete) Sectioned ____ (Yes or No) Efficiency ____ %
Girth ____ H.T. ____ X.R. ____ Sectioned ____ No. of Courses ____
(If riveted describe seams fully on reverse side of form)

6 HEADS: (a) Material SA240 T304L T.S. 70,000 (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) BOTTOM	.094"							CONCAVE
(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: DIMPLE JACKET PROOF-TESTED AND APPROVED FOR ASME CODE
(Describe as ogee & weld, bar, etc. If bar give dimensions, if bolted, describe or sketch)

9 Constructed for max. allowable working press. 158 / 176 psi at max. temp. 700 / 400 °F Min. temp. (when less than -20°) ____ °F. ~~Hydrostatic~~ XXXXXX Test Press. 312 psi

Items 10 and 11 to be completed for tube sections.

10 TUBE SHEETS: Stationary Material ____ (Kind & Spec. No.) Diam. ____ in. (Subject to Pressure) Thickness ____ in. Attachment ____ (Welded, Bolted)
Floating Material ____ (Kind & Spec. No.) Diam. ____ in. Thickness ____ in. Attachment ____

11 TUBES: Material ____ (Kind & Spec. No.) O.D. ____ in. Thickness ____ inches or gage. Number ____ Type ____ (Straight or U)

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

12 SHELL: Material SA240 T316L (Kind and Spec. No.) T.S. 70,000 (Fig. or F.B. & Spec. Min. T.S.) Nominal Thickness 1/4 in. Corrosion Allowance 0 in. Diam. 3 ft. 6 in. Length 3 ft. 7-11/16 in.

13 SEAMS: Long D.B.W. (Welded, Dbl., Single, Lap, Butt) H.T. NO (Yes or No) X.R. SPOT (Spot or Complete) Sectioned NO (Yes or No) Efficiency 85 %
Girth D.B.W. H.T. NO X.R. SPOT Sectioned NO No. of Courses 1
(If riveted describe seams fully on reverse side of form)

14 Heads (a) Material SA240 T316L T.S. 70,000 (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, ~~end~~ XXX	.406" MIN	42"	3"					BOTH
(b) Channel								
(c) Floating								

If removable, bolts used (a) SA-105 GR 1, 60,000, 7/8" dia. (40) (Material, Spec. No., T.S., Size, Number)
(c) ____ Other fastening ____ (Describe or Attach Sketch)

15 Constructed for max. allowable working press. FV & 110 / FV & 150 psi at max. temp. 700 / 400 °F Min. temp. (when less than -20°) ____ °F. Hydrostatic XXXXXXX Test Press. 267 psi

Items below to be completed for all vessels where applicable

16 SAFETY VALVE OUTLETS: Number ____ Size ____ Location ____

17 NOZZLES:

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
INLETS	3	3/4"	FLG'D	T316L	SCH 40	-	WELDED
BTM.OUT.	1	2"	PAD	T316L	150#	-	WELDED
VAPOR	1	4"	FLG'D	T316L	SCH 40	-	WELDED

18 INSPECTION OPENINGS: Manholes, No. ____ Size ____ Location ____
Handholes, No. 1 Size 6" Location TOP HEAD
Threaded, No. ____ Size ____ Location ____

19 SUPPORTS: Skirt NO (Yes or No) Lugs 4 (Number) Legs ____ (Number) Other ____ (Describe) Attached U.S.-WELDED (Where & How)

20 REMARKS: 300 GALLON DIMPLE JACKETED, AGITATED REACTOR FOR PILOT PLANT
(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooler, etc. State contents of each part.) (Over)

* If postweld heat treated
† List other internal or external pressures with coincident temperature when applicable

(ASME U-1) Rev. 2 1964
M-13 Rev. 1 11/67 1M

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this unfired pressure vessel conform to the ASME Code for Unfired Pressure Vessels.

Date 11-6 19 67 Signed BRIGHTON CORPORATION (Manufacturer) By DON WYATT

Certificate of Authorization Expires DECEMBER 31, 1970

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY BRIGHTON CORPORATION at CINCINNATI, OHIO

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State of PENNSYLVANIA and employed by MUTUAL BOILER & MACH INSUR CO. of WALTHAM, MASSACHUSETTS have inspected the pressure vessel described in this manufacturer's data report on _____ 19____, 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 12-28 19 67

C. L. Lucas Commissions NB 4565-OHIO #1280 PA WC902

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 _____

Inspectors Signature Nat'l Board or State and No.