MVE Cryogenics

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS

(Alternative Form for Single Chamber, Completely Shop-Fabricated Vessels Only)
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

1. Manufactured and certified by MINNESOTA VALLEY ENGINEERING, 407 7th ST, NW; NEW PRAGUE, MN 56071
(Name and address of manufacturer)

2. Manufactured for _____
(Name and address of purchaser)

3. Location of installation _____
(Name and address)

4. Type: VCS 1500 NS (Horiz or Vert Tank) | 3630 (Mfgr's Serial No.) | C5448.612345789 (CRN) | D32664 A (Drawing No.) | 49173 (Nat'l. Bd. No.) | 1994 (Year built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1992 (Year)

to: A-92 (Addenda (Date)) | NA (Code Case Nos.) | LOW TEMP. SVC. UW2B UHT6 (Special Service per UG-120(d))

6. Shell: SA553 T1 (Mat'l (Spec. No., Grade)) | .328" (Nom. Thk (in.)) | 0 (Corr. Allow (in.)) | 5' 0" (Diam I.D. (ft. & in.)) | 9' 1.75" (Length (overall) (ft. & in.))

7. Seams: TYPE 1 (Long. (Welded, Double, Single, Lap, Butt)) | FULL (R.T. (Spot or Full)) | 100 (Eff. (%)) | NA (H.T. Temp. (F)) | NA (Time (hr.)) | TYPE 2 (Girth (Welded, Double, Single, Lap, Butt)) | SPOT (R.T. (Spot, Partial, or Full)) | 1 (No. of Courses)

8. Heads: (a) Matl. SA353 (Spec. No., Grade) (b) Matl. SA353 (Spec. No., Grade)

	Location (Top, Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure (Convex or Concave)
(a)	TOP	.327"	0	NA	NA	2:1	NA	NA	NA	CONCAVE
(b)	BOTTOM	.327"	0	NA	NA	2:1	NA	NA	NA	CONCAVE

If removable, bolts used (describe other fastenings) NONE
(Matl., Spec. No., Gr., Size, No.)

9. MAWP 250 psi at max. temp. 100 °F
Min. design metal temp. -320 °F at 250 psi. Hydro., pneu., or comb. test pressure 410 psi

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diameter or Size	Type	Matl.	Nom. Thk.	Reinforcement Matl.	How Attached	Location
TF, BF	2	2.25"OD	W.E.	SA479 T304	.454"	NA	WELDED	NA
GP	1	0.75"OD	W.E.	SA479 T304	.250"	NA	WELDED	NA
PV, PBR, FT	3	1.25"OD	W.E.	SA479 T304	.311"	NA	WELDED	NA
V, GU, AL	3	2.00"OD	W.E.	SA479 T304	.450"	NA	WELDED	NA
LP	1	1.00"OD	W.E.	SA479 T304	.305"	NA	WELDED	NA
HYDRO	2	2.25"OD	CPLG.	SA479 T304	.533"	NA	WELDED	NA

11. Supports: Skirt NO (Yes or No) Lugs NA (No.) Legs NA (No.) Other HUB (Describe) Attached HEAD WELDED (Where and How)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: NA
(Name of part, item number, Mfgr's. name and identifying stamp)

VACUUM JACKETED VESSEL. LOW TEMPERATURE SERVICE. RT - UW-11(a)(5). DESIGN PRESSURE IS 272.0 PSI. INNER VESSEL CODED ONLY. HYDRO PORTS ARE PLUGGED AND SEAL WELDED. IMPACT TESTED PER UHT6. TEST POSITION IS VERTICAL.

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. 8377 expires JAN.15 19 95

Date May 12, 1994 Co. name MINNESOTA VALLEY ENGINEERING (Manufacturer) Signed _____ (Representative)

CERTIFICATE OF SHOP INSPECTION

Vessel constructed by MINNESOTA VALLEY ENGINEERING at NEW PRAGUE, MINNESOTA 56071

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 MINNESOTA and employed by COMMERCIAL UNION INSURANCE COMPANY

have inspected the component described in this Manufacturer's Data Report on May 12 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 5/13/94 Signed _____ (Authorized Inspector) Commissions NB 4465 A (Nat'l. Board (incl. endorsements), State, Prov. and No.)

Form 2129D