FERTILIZER CANADA
FERTILISANTS CANADA

907 – 350 Sparks, Ottawa ON K1R 7S8
T (613) 230-2600 | F (613) 230-5142

info@fertilizercanada.ca
fertilizercanada.ca | fertilisantscanada.ca

November 12, 2020

BULLETIN # 05-2020

November 12, 2020

Pressure Testing Frequency - Mobile Ammonia Tanks

This bulletin is to assist Retail Anhydrous Ammonia Tank Owners and Transport Canada Registered Testing Facilities determine the required frequency for pressure testing mobile ammonia tanks based on the Post Weld Heat Treatment (PWHT) that has been performed on the vessel. This bulletin also provides clarity on reading the vessel data plate and the U1A Manufacturers' Data Report in this regard.

The affected tanks (Means of Containment) are either a highway tank (Field Delivery Unit or Transport Delivery Unit (TDU)), or a mobile portable tank, (nurse tank or applicator tank), operated exclusively for agricultural purposes.

All tanks manufactured after January 12, 2018 are constructed to Transport Canada Specifications (TC51, TC331) which includes Post Weld Heat Treatment (PWHT) and therefore require pressure testing every 5 years.

Some tanks built prior to January 12, 2018 (commonly referred to as ASME tanks or in CSA B622 – Language special requirements 55 (SR55)) must be tested every 3 years. These SR-55 /ASME tanks can be tested every 5 years if they meet the following criteria:

- Have been post-weld heat treated (during manufacturing process) and;
- Tanks must be designed for Anhydrous Ammonia use (NH_3) with a Maximum Allowable Working Pressure (MAWP) of 250 (PSI) 1725 (KPA) or 265 (PSI) 1825 (KPA).

The owner must demonstrate that a tank qualifies for the 5-year test interval. This can be accomplished by referencing information on the tank data plate and/or the U1A Manufacturers Data Report.

A tank data plate must include a marking of "**HT" or "PWHT",** clearly legible, to qualify for a 5-year test cycle. (See Examples 1 and 2 in the Annex below.)

Data plate markings of "**PHT"** (Partial Heat Treated) do not qualify for a 5-year test cycle.

In cases of inconsistency between information on a data plate and information in the U1A Form, the Manufacturers' Data Report (U1A) will take precedence. Replacement of missing or illegible data plates can be sought from the manufacturer based on the U1A report or the National Board of Pressure Vessel Inspectors.

Please note that the industry has received a letter from the Manufacturer for the following tanks confirming that they are Post Weld Heat Treated and can follow a 5-year pressure testing interval however owners should still confirm test frequency via reference to the data plate and the U1A information.

- Western Rockbit – All tanks 1975 and Newer
- RNG – All tanks 1975 and Newer
- Maxfield – All tanks 1975 and Newer

Annex A to this bulletin contains further guidance on reading data plates and U1A Manufacturer's Data Reports.

- Examples 1 and 2 show markings on a data plate with an "HT" marking and thus a 5-Year pressure test interval
- Example 3 shows a U1A Manufacturers Data Report confirms the vessel was PWHT (evidenced by the heat temperature and test duration) thus qualifying for a 5-year pressure test interval
- Example 4 shows two data plates and one Manufacturers Data Report for tanks that would not qualify for a 5-year pressure test interval

Questions concerning the information in this bulletin can be directed to any of the following: Dennis Black, Ammonia Code Senior Auditor, at deblack1@mts.net or 204-512-2109; Anthony Laycock, Ammonia Code Project Manager at manager@awsa.ca; or Fertilizer Canada at Info@FertilizerCanada.ca or 613-230-2600.

Regards,

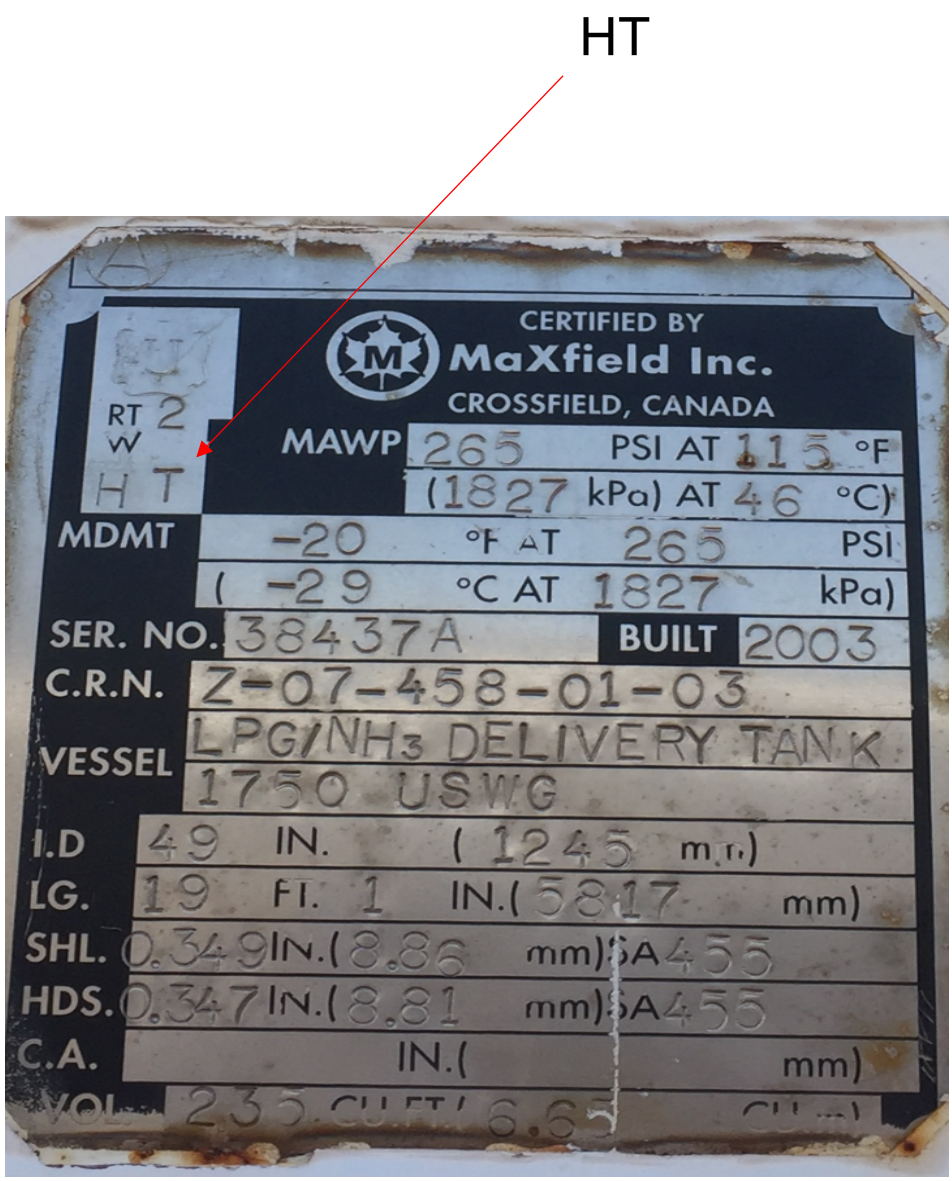
Donna Jean Kilpatrick, P.Eng.
Senior Advisor
Fertilizer Canada
Tel: 613-404-4172
dkilpatrick@fertilizercanada.ca

Example 1: PWHT (1825) KPA

This data plate example indicates HT and is therefore eligible for a 5-year pressure test interval.

Example 2: PWHT (1827) KPA

This data plate example indicates HT and is therefore eligible for a 5-year pressure test interval.



EXAMPLE 3 - An Acceptable PWHT UA1 Form

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS
(Alternative Form for Single Chamber, Completely Shop or Field Fabricated Vessels Only)
As Required by the Provisions of the ASME Boiler and Pressure Code Rules, Section VIII, Division 1

JOB 31-3005
A# Wagon Tank

1. Manufactured and certified by MaXfield Inc. Box 830 1026 Western Drive, Crossfield, Alberta T0M 0S0 (Name and address of manufacturer)
2. Manufactured for MaXfield Inc.- SK # 801-50Street East Saskatoon, SK S7K 3Y5 (Name and address of purchaser)
3. Location of Installation Non-stationary (Name and Address)
4. Type: HORIZONTAL (Horizontal or vertical tank) | 40567A (Manufacturer's serial #) | Z-02-458-56-13 (CRN) | 12405D Rev A (Drawing number) | N/A (National Board number) | 2013 (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 2010 Edition
To 2011 (Addenda(Date)) | 2714 (Code Case Numbers) | N/A (Special Service per UG-120(d))
6. Shell: SA455 (Material Spec. number,Grade) | SEE REMARKS" (Nominal Thickness) | NIL (Corr. allow.) | 5' 7" (Inner diameter) | 19' 8" S/S (Length (overall))
7. Seams: TYPE No. 1 (Long.(Welded,dbl., sngl.,lap,butt)) | FULL (R.T. (Spot or Full)) | 100% (Eff.,%) | 1120 °F (H.T. temp.) | 45 mins. (Time,hr) | TYPE No. 2 (Girth (Welded,dbl.,sngl.,lap,butt)) | SPOT (R.T. (Spot or Full)) | 70% (Eff.,%) | 2 (No. of courses)
8. Heads: (a) Material SA516-70 (Spec No., Grade) (b) Material SA516-70 (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)	END	0.5625"	NIL			2:1 SE				Concave
(b)	END	0.5625"	NIL			2:1 SE				Concave

If removable, bolts used (describe other fastenings) N/A

9. MAWP 265 psi (Internal) | N/A (External) psi at max. temp. 115 °F (Material spec. number,grade,size,number) (Internal) | N/A °F (External)
Min. design metal temp. -20° °F at 265 psi. Hydro.,pneu., or comb. test pressure 398 psi.
Proof Test N/A

10. Nozzles, Inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Diam. or Size	Type	Mat'l. Nozzle	Mat'l. Flange	Nozzle Thickness Nom.	Nozzle Thickness Corr	Reinforcement Mat'l	Attachment Details Nozzle	Attachment Details Flange	Location (Insp. Open)
Press. Relief	1	2"	HCPLG	SA105N		CL3000	NIL	Inherent	UW16.2(k)		Shell
Drain	1	1.25"	HCPLG	SA105N		CL3000	NIL	Inherent	UW16.2(k)		Shell
Spray Fill/Liquid Out	2	2"	FCPLG	SA105N		CL6000	NIL	Inherent	UW16.2(k)		Head
Vapour	1	1.25"	FCPLG	SA105N		CL6000	NIL	Inherent	UW16.2(k)		Head
Inspect. Open.	1	10"	Insert	SA516-70		CL150	NIL	Inherent	UW16.2(k)		Head
Float Gauge	1	2"NPT	Hole	Tapped		------	------	------	------		Blind-Head
85% Outage/PI	1	0.75"	Hole	Tapped		------	------	------	------		Shell

11. Supports: Skirt No (Yes or No) Lugs 2 (No.) Legs No. (No.) Other Saddles (Describe) Attached Shell Welded (Where and How)
12. Remarks: Manufacturer's Partial Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: (Name of part, item number, Manufacturer's name and identifying stamp)
4000 USWG NH3 Farm Wagon Tank Manufacturer's Drawing 12341D Rev C Shell material manufactured to fine grain practice.

Capacity 535 Cu. Ft (15.1 Cu. M) Impact Test: No, Exempt per UG20(f)(1-5) Vessel for Non-Corrosive Service Pressure. Relief Devices by Others per UG125

UW13.1(l) Crimp joint has been used to attach heads to shell and shell to shell. Material allowable stresses comply with ASME VIII-Div. 1, 1998 Edition
10" CL150 RF Blind SA105N Stud Qty: 12 7/8"NC x 3 ½" LG SA193-B7 Hex Nuts 7/8"NC SA194-2H Shell Min Design thk- 0.492" Actual used 0.500"

CERTIFICATE OF SHOP/FIELD 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 BOILER AND PRESSURE VESSEL CODE, Section VIII, Division 1, "U" Certificate of Authorization Number 13,551 expires July 7, 2014.

Date Apr 24/13 Co. name MaXfield Inc. (Manufacturer) Signed Roberta Barnack (Representative)

CERTIFICATE OF SHOP/FIELD INSPECTION

Vessel constructed by MaXfield Inc. at 1026 Western Drive, Crossfield, Alberta

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 Alberta and employed by ABSA

have inspected the component described in this Manufacturer's Data Report on APR 2 4 2013, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME BOILER AND PRESSURE VESSEL 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 APR 2 4 2013 Signed (Authorized Inspector) Commissions AB 428 NB 14678 A (Nat'l Board (incl. endorsements), State, Province and number)

Example 4: (3-year pressure test frequency required)

This data plate does NOT indicate HT therefore a 3-year pressure test frequency is required.

The RT4 marking is an Engineering Code for welding. The PHT marking indicates Partial Heat Treatment only – The heads are heat treated not the complete tank.

Example 4 continued: (3-year pressure test frequency required)

This data plate does NOT indicate HT therefore a 3-year pressure test frequency is required.

Example of Manufacturer's report which does not confirm PWHT

WESTEEL-ROSCO LIMITED

HALIFAX QUEBEC MONTREAL OTTAWA TORONTO LONDON THUNDER BAY WINNIPEG REGINA SASKATOON CALGARY EDMONTON VANCOUVER FARGO

AFFIDAVIT OF MANUFACTURER

For Propane or Anhydrous Ammonia Vessel Only

Upon shipment of Pressure Vessel this form fully and correctly filled in and attested to will be mailed to the office of the Chief Inspector in the province of installation in accordance with the regulations under The Act governing the construction and installation of boilers and pressure vessels, otherwise the use of same may be prohibited or the working pressure severely penalized.

1. Manufactured by **WESTEEL-ROSCO LIMITED**, 1550 Dublin Ave., Winnipeg, Manitoba R3E 0L4

Manufactured for [redacted] (Name and Address of Purchaser or Consignee) (Cust. Order Number) 29065 (File Number)

Shipping destination _____ (Address)

2. For Propane or Anhydrous Ammonia? ANHYDROUS AMMONIA Mfg. Serial No. A1721

Canadian Registration number (C.R.N.) 8161.3 Dwg. No. D-76-243

3. Dia. 40½" Overall length 229" U.S. gal cap. 1200 Outside surface area 207 sq. ft.

Is vessel constructed with baffles? YES (yes or no) How many? THREE

4. Were test reports checked on all plates used in the fabrication of this vessel? YES

Does all material meet A.S.M.E. Code requirements? YES

For shell — A.S.M.E. or A.S.T.M. material specification No. SA455 Tensile strength 75:000

For heads — A.S.M.E. or A.S.T.M. material specification No. SA285C Tensile strength 55:000

Filler metal specification No. or trade name and tensile strength _____

5. Fabrication to A.S.M.E. Code, paragraph No. UW 12 (b) 1977

Was vessel stress relieved? HEADS ONLY X-rayed? NO Spot X-rayed? ON A1719 Trepanned? NO

Are the following on mfg's files? X-ray films NO Stress relieving procedure NO Trepanned samples NO

Were X-ray films examined and found to meet Code requirements? YES

6. Welders employed upon vessel: _____

Name of welders and Province or State in which qualified	Identifying Symbol	Date of last weld test	Is welder qualified to weld under Sec. IX of Code	Name of Inspector supervising tests	National Board No.

Was all welding on this vessel performed in accordance with an approved and tested A.S.M.E. Code procedure? YES

7. Hydrostatic tests and Working Pressures

Name of Part	Code para.	Design pressure	Hammer tested at p.s.i.	Final test Pressure p.s.i.
ANHYDROUS AMMONIA				
NURSE TANK	UW 12 (b)	265 psi		400 psi

Did the hydrostatic tests fully conform to Code requirements? YES

8. SAFETY VALVES: —

No. of valves	Maker's Name, Trade Mark or Type No.	Size	U.L. Rated yes or no	U.L. Rating cap. C.F.M.	A.S.M.E. Rated yes or no	A.S.M.E. rating cap. lb./hr.	Set to relive at p.s.i.
2	SQUIBB-TAYLOR						
	A-1301B	3/4"			YES	1857	265

9. Are all propane container fittings U.L. aproved? _____ (yes or no)

Are all Anhydrous Ammonia container fittings specifically designed for use with Anhydrous Ammonia? YES (yes or no)

FORM B

10. **Actual minimum stamping of the vessel or attached name plate shall conform to the following and shall be reproduced here:**

FOR PROPANE STORAGE CONTAINER —

Canadian Registration number	C.R.N.
Manufacturer's name and manufacturer's serial number	WESTEEL-ROSCO LIMITED Sr. No.
Plate specification number and tensile strength	Shell T.S.
Plate specification number and tensile strength	Head T.S.
Thickness of shell and heads	T. Shell T. Heads
Registered maximum design pressure	Max. W.P.
A.S.M.E. Code paragraph number and year built	U.W. 19
Diameter and overall length and/or outside surface area in sq. ft.	Dia. Lg. O.S.
Water capacity in U.S. gallons or both U.S. and Imp. gallons	Cap.

The words FOR PROPANE

FOR ANHYDROUS AMMONIA CONTAINER —

Canadian Registration number	C.R.N. 8161.3
Manufacturer's name and manufacturer's serial number	WESTEEL-ROSCO LIMITED Sr. No. A1721
Plate specification number and tensile strength	Shell SA455 T.S. 75:000
Plate specification number and tensile strength	Head SA285C T.S. 55:000
Thickness of shell and heads	T. Shell .344" T. Heads .281"
Registered maximum design pressure	Max. W.P. 265 psi
A.S.M.E. Code paragraph number and year built	U.W. 12 (b) 19 79
Diameter and overall length	Dia. 40½" Lg. 229"
Water capacity in U.S. gallons or both U.S. and Imp. gallons	Cap. 1200 U.S.G.

The words FOR ANHYDROUS AMMONIA.

11. I HEREBY DECLARE that the foregoing statements, having reference to Vessel bearing manufacturer's Serial No. A1721 built by **WESTEEL-ROSCO LIMITED** of Winnipeg, Manitoba and completed on the 30TH day of March 19 79 are in all respects correct and true, and that the said Vessel has been built in accordance with Provincial registered design No. 8161.3 and that it complies fully with A.S.M.E. Code, N.B.F.U. and U.L. requirements where applicable and Provincial Regulations Respecting Liquified Petroleum Gas or Anhydrous Ammonia.

Sworn before me at Winnipeg,

in the Province (or State) of Manitoba

this ____ day of APR 5 1979 19 ____

A Commissioner of Oaths, J.P., or N.P.

A Commissioner of Oaths in and for The Province of Manitoba

My commission expires My Commission Expires January 12, 1981

Signed _____ (Shop Foreman)

For **WESTEEL-ROSCO LIMITED**

1550 Dublin Ave., Winnipeg, Man. R3E 0L4

12. 4 APR 1979

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, a duly authorized Pressure Vessel inspector employed by

THE PROVINCE of MANITOBA

do hereby certify that the foregoing statements are correct and that the material, construction and workmanship are in accordance with the A.S.M.E. Code.

Date 4 APR 1979 Signed _____ Provincial Inspector No. 8

FOR DEPARTMENT OF LABOUR USE ONLY

13. Received ____, 19____ Inspector's Pressure Vessel No. ____

Checked ____, 19____

I have allowed a working pressure of ____ lbs. per square inch, based on a F.S. of ____

and have issued Report No. ____ therefor.

Vessel owned by ____ of ____

Remarks: ____

(Signature of Inspector)