

PLASTEEL® COMPOSITE

INSTALLATION INSTRUCTIONS

I. GENERAL

The **PLASTEEL COMPOSITE**® underground tank is a U.L. Listed composite tank providing corrosion protection per U.L. 1746 in double-wall and single-wall designs.

PLASTEEL COMPOSITE® underground tanks must be installed according to these installation instructions, the latest issue of the N.F.P.A. 30 and the authority having jurisdiction (AHJ).

The installer and/or owner must read and be familiar with the entire installation instructions prior to installing the **PLASTEEL**® tank. To activate the **PLASTEEL COMPOSITE**® Tank Warranty, a completed and signed Certificate of Installation for the **PLASTEEL COMPOSITE**® Underground Tank must be returned to the manufacturer. For additional installation references, consult the current editions of:

- Petroleum Equipment Institute, RP-100
- American Petroleum Institute, RP-1615.

If tank will be stored above ground more than 30 days, consult the manufacturer for procedures.

Products stored in the **PLASTEEL**® tank must not exceed 150° (66° C). The **PLASTEEL**® tank shall be maintained per API RP 1621, Appendix D.

II. VISUAL INSPECTION

Prior to setting tank in hole, inspect exterior for damage. If tank exterior is damaged, call factory regarding correct repair procedures. Exterior damage is indicated when the blue color of the FRP laminate has shown a white fractured pattern.

III. HANDLING

Good construction engineering practice, common sense and safety must prevail during this phase. **PLASTEEL**® tanks are not to be dropped or rolled off of the delivery vehicle onto the ground or into the hole. The lifting hook or hooks provided must be used in combination with the proper capacity unloading equipment. It is the responsibility of the owner to provide the qualified personnel and safe, proper unloading equipment, with specific consideration given to tank weight and reach distance to set tank in excavation. The preferred lifting cable included angle is 60° and must never exceed 120°. A spreader bar may be used to achieve this angle.

IV. EXCAVATION DEPTH, BEDDING AND BACKFILL

Follow all applicable local regulations and codes. When excavating, allow a minimum clearance of 6" for backfill around the tank. For minimum burial cover, consult N.F.P.A. 30. If burial cover over top of tank exceeds five (5) feet, consult factory. Backfill materials should be clean, debris free, sand or pea gravel. Hydrocarbon exposed sand or pea gravel may be re-used if approved by the AHJ. Native sand may be used if approved by the tank manufacturer and the AHJ. Allow a minimum of 12" of backfill between traffic slab and all appurtenances that are attached to the tank. Damage to tank may occur if surface traffic loads are transmitted directly to tank.

V. ANCHORING SYSTEMS

CAUTION: The decision to use an anchoring system is the responsibility of the owner. Damage to the tank may occur if the tank is subjected to movement.

Consult the factory for number, size and type of hold-down assemblies required when using a concrete pad under the tank. You may set and securely anchor the **PLASTEEL**® tank on the pad

with a minimum of 6" of backfill between tank bottom centerline and the pad. Upon AHJ approval, you may set and securely anchor the **PLASTEEL**® tank directly on the smooth, flat pad taking care to place a 12" wide x 1" thick piece of felt between the entire tank bottom centerline and the pad to minimize damage during placement. Consult factory for other anchoring techniques.

VI. TESTING

PLASTEEL® tanks are designed for atmospheric service. Test procedures shall be in accordance with these instructions, N.F.P.A. 30, and the AHJ. Insert and tighten steel plugs in unused pipe connections.

Test pressure shall not exceed 5 psi. When pressure testing the piping, the tank must be isolated and not subjected to the higher pressures.

DOUBLE-WALL: Test inner tank at a maximum of 5 psi. Do NOT pressurize interstice (volume between tanks) by itself. If outer tank must be tested, use a tee fitting to pressurize inner tank and interstice simultaneously. After test, release simultaneously. Never allow interstice pressure to exceed primary (inner) tank pressure. For additional instructions, consult factory.

CAUTION: Damage to tank may occur if pressure in primary tank exceeds 5 psig or pressure in interstice exceeds pressure in primary tank.

The tank may be delivered with an interstitial vacuum established at the factory. The delivery document will state the vacuum gauge reading required for acceptance at the delivery location. Record the vacuum gauge reading on the delivery document when the tank is delivered. If the vacuum gauge has decreased from the vacuum gauge reading listed for acceptance on the delivery document, call the factory for further instructions. If an interstitial vacuum is to be established at the installation, follow the instructions in Appendix B, Interstitial Vacuum Test. **DO NOT** apply a vacuum to the primary tank, **DAMAGE MAY OCCUR.**

OPTION: See Appendix B for a final installation tightness test that complies with E.P.A. leak tightness test protocol.

VII. VENTING: DOUBLE-WALL TANK

The primary tank must be vented to atmospheric pressure except for use with a vapor recovery system, provided the pressure or vacuum does not exceed 1 psi (6.9 kpa). Compliance is required for underground tank venting in N.F.P.A. 30. The interstitial space does not require venting. It is recommended that the interstice be sealed air tight.

CAUTION: DO NOT MANIFOLD VENT FROM PRIMARY TANK TO VENT FROM INTERSTICE.

VIII. PLASTEEL® SEALING PROCEDURES

These procedures must be performed prior to completion of backfill and **AFTER TESTING**. To ensure complete corrosion protection, the following instructions must be followed:

a. General instructions for working with fiberglass resin

By carefully performing the following steps, your **PLASTEEL**® tank will be fully protected from corrosion. The kit includes materials for covering and protecting the unused tank connections, tank handling hooks, and each of the pipe connections on top of the tank. **The PLASTEEL® kit contains hazardous materials.** Read the enclosed material safety data sheets before proceeding to work with **PLASTEEL**® kit materials.

The standard kit includes the following materials and tools:

BOX A

4 each 1 Qt. bottles **PLASTEEL®** resin

BOX B

1 each 1 Qt. bottle	Resin emulsifier or Acetone
4 each 1 Oz. bottles	Catalyst
6 each	Star Mats
10 each	Mat strips
6 each	Plug mats
1 - 3 each	4" Flat pipe plugs
2 each	Paint stirring sticks
2 each	1-1/2" Paint brushes
3 each	Mixing cups
1 each Sheet	60 grit sandpaper
4 each	Hook Mats

Additional material is supplied when tank configured with containment collars, special fittings, manholes or extension spools.

b. Preparation

Do not mix the catalyst with the resin until all the pieces you wish to impregnate have been fitted in place and the 1" strips of matting are laid out next to their corresponding pipe connections. Once the resin and catalyst are mixed, a chemical reaction begins that cannot be reversed. Working time for a mixed batch is about 30 minutes at 70° F. Higher temperatures make it set up more quickly, shortening working time. For example, at 100° F. you will have approximately 15 minutes of working time. The key things to remember are: (1) Be prepared and have all parts prefitted and in place before mixing the resin. (2) Mix only as much resin as you can use in 30 minutes and mix it thoroughly - stir for at least 1 minute. (3) Work quickly and efficiently. Lower temperatures increase resin set-up time and require additional catalyst.

c. Mixing the catalyst

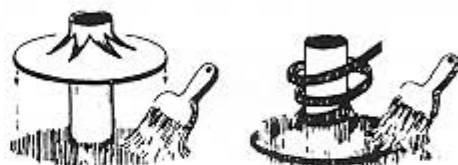
Resin and catalyst must be mixed in the proper proportions so that the resin will harden properly. Below is a list of some various size batches you could mix.

RESIN	CATALYST
1 qt.	1/2 oz.
1 pint	1/4 oz.
1 cup	1/8 oz.

If you're not sure how fast it will set up, it is better to mix several small batches rather than one big one.

d. Application

Using the paint brush provided, DAB the resin mixture into the cloth rather than painting it on. You are trying to completely soak the matting with resin, not just cover it.

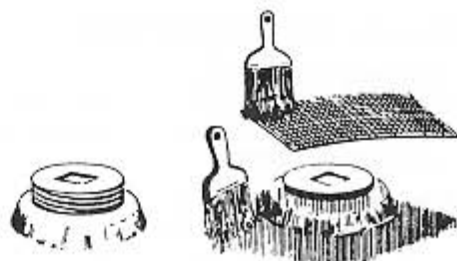


e. Pipe and Risers

For standard threaded fittings: Apply resin to the base of the pipe and top of tank and push down the matting circle as shown. Impregnate with resin.

Impregnate the strips of matting and wrap like tape around the joint starting at the base and working upward. Apply any leftover resin to the outside of the joints when done wrapping.

For special bolt-up flanges: Apply generous coating of resin to exposed metal edges of flange and wrap with resin impregnated matting strips. Apply leftover resin to nuts and bolts.



f. Steel Plugs

After fitting fiberglass matting, lift it up and apply mixed resin to the top of the tank surface where the matting will contact. Stick matting over plug into wet resin and totally impregnate matting with resin, dabbing in with paint brush as described above.

g. Manhole, Extension Spool and Handling Hooks

Apply generous coating of resin impregnated matting strips to exposed metal edges and to handling hooks (matting precut). Apply leftover resin to nuts and bolts except on access cover.

h. Cleanup

Hands and tools may be cleaned with Resin Emulsifier before the resin has hardened. No solvent will work once the resin has hardened.

NOTE:

The **PLASTEEL®** tank installation is not complete until all exposed steel surfaces on tank are sealed with the **PLASTEEL®** fiberglass resin.

For additional assistance or information, call your **PLASTEEL®** tank factory below:

Licensed PLASTEEL COMPOSITE® tank manufacturers

<p>BERTOITTO, BOGLIONE S.A. Marcos Juarez, Argentina</p>	<p>INSTALL RZESZOW Rzeszow, Poland</p>	<p>INDUSTRIA ACERO Quito, Ecuador</p>	<p>HALL TANK CO. N. Little Rock, AR (501) 945-3211 Fax (501) 945-4477</p>	<p>TECNOECO CHILE Santiago, Chile</p>	<p>K & T STEEL Twin Falls, ID (208) 733-2554 Fax (208) 733-7239</p>	<p>METAL PRODUCTS Suwanee, GA (770) 945-8383 Fax (770) 932-5671</p>	<p>TANK INC. Claremont, NH (603) 543-1272 Fax (603) 543-1270</p>	<p>TALLER EL RETOÑO C.A. Barquisimeto, Venezuela</p>	<p>INDUSTRIAS METALICAS, S.A. San Pedro Sula, Honduras</p>
	<p>INDUSTRIAS CORREAGUA Panama, Panama</p>	<p>ERMETRA INDUSTRIA Belim, Brazil</p>		<p>TANQUES GUMEX Torreon, Mexico</p>				<p>METALURGICA RIMA Guara, Brazil</p>	

◆◆◆ WARRANTY ◆◆◆

PLASTEEL® COMPOSITE® Underground Petroleum/Motor Fuel Storage Tank

OWNER NAME: _____

OWNER ADDRESS: _____

INSTALLATION ADDRESS: _____

U.L. NUMBER: _____

CAPACITY: _____

SHIPMENT DATE: _____

MANUFACTURER: _____

ADDRESS: _____

TELEPHONE: _____

The manufacturer above is pleased to extend, on the U.L. numbered tank and installation above, when installed per our instructions, installed per N.F.P.A. Standard 30 for underground steel tanks, and upon receipt of completed and signed Certificate of Installation within 60 days of the installation completion date, the following warranty:

The manufacturer above warrants the subject **PLASTEEL® COMPOSITE® Underground Tank** when maintained per API RP 1621, Appendix D:

1. *to be free from defect in workmanship and materials for a period of five years from the date of shipment.*
2. *will not fail due to internal or external corrosion for a period of thirty (30) years from the date of shipment when used to store all motor fuels including but not limited to unleaded gasoline, leaded gasoline, gasohol in any alcohol blend percentages, 100% methanol, 100% ethanol, diesel fuel, jet fuel, kerosene and fuel oil. Liquids are to be stored at atmospheric pressure and at a temperature not to exceed 150° (66° C). Consult manufacturer concerning other warranted liquids.*

This warranty is specifically limited, at our option, to the following:

1. *Repair of the tank at our factory, freight charges not included.*
2. *Replacement of tank delivered to point of original delivery.*
3. *Refund of the original purchase price.*

This warranty will be void unless written approval from the manufacturer, at our discretion, is effected before:

1. *Modification(s) is (are) performed on the tank.*
2. *The tank is removed from the intended service.*
3. *The buried tank is removed to above grade.*

Owner must provide the manufacturer the opportunity to observe and inspect the tank prior to the removal of the buried tank to aboveground.

We are not liable for any labor, other installation or removal costs, indirect or consequential damages or any other damages in connection with these tanks.

Except as stated above, we make no warranty of merchantability, no warranty that our underground **PLASTEEL® COMPOSITE®** tanks are fit for any particular purpose or use and no other warranty, express or implied.

CERTIFICATE OF INSTALLATION

FOR THE

PLASTEEL® COMPOSIT UNDERGROUND TANK

In compliance with part 280 of Title 40 of the Code of Federal Regulations, this document may be implemented to meet Subpart B, paragraph 280.2 (e), CERTIFICATION OF INSTALLATION.

The installer must initial all sections below representing that the installer has read, was cognizant of and has completed, as applicable, all sections of the PLASTEEL® COMPOSIT Tank Installation Instructions attached hereto.

INSTALLATION CHECK-OFF COMPLETION LIST

SECTION	INITIAL	DATE
I. GENERAL	_____	_____
II. VISUAL INSPECTION	_____	_____
III. HANDLING	_____	_____
IV. EXCAVATION DEPTH, BEDDING AND BACKFILL	_____	_____
V. ANCHORING SYSTEMS	_____	_____
VI. TESTING	_____	_____
VII. VENTING: DOUBLE WALL	_____	_____
VIII. PLASTEEL® SEALING PROCEDURES	_____	_____

INSTALLATION DESCRIPTION

INSTALLATION SITE

ADDRESS _____

CITY, STATE, ZIP _____

PLASTEEL® TANK OWNER

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

SIGNATURE _____

DATE _____

PLASTEEL® TANK DATA

The U.L. Label and serial number is on the top centerline of the tank and also listed on the delivery document.

SIZE IN GALLONS TYPE (DW OR SW) U.L. SERIAL NUMBER

INSTALLATION COMPANY

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

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TELEPHONE _____

INSTALLATION COMPLETION/SUPERVISOR'S SIGNATURE

The responsible supervisor's signature below represents that phases I through VIII were properly completed per the PLASTEEL® COMPOSIT Installation Instructions:

SIGNATURE _____

DATE _____

PRINT NAME _____

YOUR PLASTEEL® TANK MANUFACTURER IS:

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

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TELEPHONE _____

RETURN COMPLETED FORM TO MANUFACTURER TO ACTIVATE WARRANTY

PLASTEEL® UNDERGROUND TANK

APPENDIX B

INTERSTITIAL VACUUM TEST (IVT)

1.0 Introduction: This test method has been developed by PLASTEEL INC. to meet the E.P.A. Alternate (Non-Volumetric) Tank Tightness test procedures. The IVT has been verified by a third party to be capable of detecting a 0.1 gal/hr leak rate with a probability of detection of 100% when all of the testing criteria are met. The false alarm rate for a tight tank is less than 5%. It is impossible to maintain a steady vacuum if a leak is present. This test is not necessary to attain the PLASTEEL® tank warranty. This test is offered as a stand alone leak tightness test method.

2.0 Application: The IVT is applicable to the PLASTEEL® ELUTRON® (jacketed) Double-wall tank and the PLASTEEL® Composit Double-wall tank. For compartmented tanks, consult the factory for the test time.

3.0 Authority: The Jurisdiction Having Authority (JHA) will determine whether the double-wall UST must be subject to a leak tightness test before placing the UST in service.

4.0 Pre-Delivery Procedure:

- 4.1 Read and understand the PLASTEEL® Tank Installation instructions and Appendix B before attempting the interstitial vacuum test. Contact the PLASTEEL® tank manufacturer if you have any questions.
- 4.2 Consult the PLASTEEL® tank manufacturer before the tank is shipped to ensure that the tank is delivered with the test gauge assembly. This assembly is an optional piece of equipment supplied by the tank manufacturer.
- 4.3 Prior to shipment from the factory, you may request that the manufacturer deliver the tank with the vacuum established.
- 4.4 Upon delivery, the delivery document will indicate the correct vacuum gauge reading. Call the factory if the gauge reading does meet the gauge reading specified on the delivery document.
- 4.5 To maintain the vacuum during the unloading and installation phases, extreme care must be taken to ensure the IVT gauge assembly is not jarred, struck or moved in any manner. Call the factory for instructions if the vacuum has decreased.

5.0 Test Procedures:

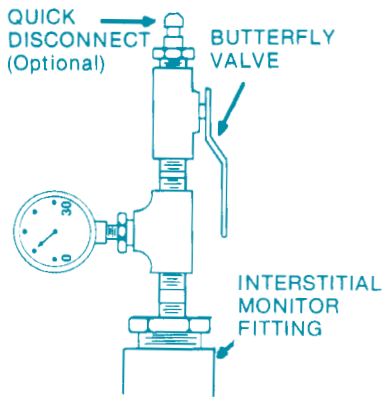


FIGURE 5.0: VACUUM GAUGE TEST ASSEMBLY (TYPICAL). ACCURACY: ASME (ANSI) GRADE B, ± 2%, 0-30" Hg, with 1" Hg GRADUATIONS.

- 5.1 If the vacuum was established at delivery and has not decreased during the unloading and installation phases, you may by-pass 5.2 and 5.3
- 5.2 Install the vacuum gauge test assembly (see Fig. 5.0) in the monitor access NPT coupling on the tank top centerline. Ensure that any additional monitor access couplings are properly sealed with threaded plugs.
- 5.3 Connect the vacuum pump to the test gauge assembly and draw down to 10" hg. Record initial gauge reading, date, and time of day in Part IV of the Certificate. The initial pump

down on the ELUTRON® jacketed tank may require reiteration due to the slow nature of air movement in the interstitial space.

- 5.4 To ensure a vacuum has been established, the gauge must read 10" hg. for three (3) hours without any decrease on the gauge before proceeding with 5.6. Contact the factory if the vacuum cannot be established per this paragraph.
- 5.5 Complete sections II and III of the Certificate of Tightness Test.
- 5.6 Refer to the Test Time Table (Figure 6.0) to determine the correct minimum time period for a valid test. Begin timing the test after completing 5.4. Record the nominal tank capacity, primary tank product and required test hours in Part IV of the Certificate.
- 5.7 After the required test time has passed, observe the gauge reading and record the reading, date and time of day in Part IV of the Certificate.
- 5.8 Test Conclusions: The tank has passed the leak tightness test when the final gauge reading has not decreased from the initial gauge reading of 10" Hg. If other observations are made, consult the tank manufacturer.

Test Time Tables: The table in Figure 6.0 lists the minimum test period (in hours) to perform a valid IVT with a dry (air only) primary tank. The IVT test may be performed with gasoline, diesel or water in the primary tank. Consult the PLASTEEL® tank manufacturer for the specific test time for these situations.

TEST TIME TABLE: DRY PRIMARY TANK		
CAPACITY (GALS.)	JACKETED (HOURS)	COMPOSIT (HOURS)
500	4.0	4.5
1,000	4.0	5.5
2,000	4.0	8.0
3,000	4.0	9.0
4,000	4.0	9.5
5,000	4.0	10.5
6,000	4.0	11.0
8,000	4.0	13.0
10,000	4.0	14.5
12,000	4.0	15.5
15,000	4.0	17.5
20,000	4.0	20.5
30,000	4.0	37.5
40,000	4.0	45.5
50,000	4.0	53.0

FIGURE 6.0

YOUR Licensed PLASTEEL® tank manufacturer is: