

PLASTEEL® ELUTRON® Double-Wall INSTALLATION INSTRUCTIONS Tank

I. GENERAL

The **PLASTEEL® ELUTRON®** underground tank is a U.L. Listed Jacketed tank providing corrosion protection and 360° secondary containment per U.L. 1746 and 58.

ELUTRON® underground tanks must be installed according to these installation instructions, the latest issue of the Flammable and Combustible Liquids Code, N.F.P.A. 30 for underground tanks and the Authority Having Jurisdiction (AHJ).

The installer and/or owner must read and be familiar with the entire installation instructions and Appendix A prior to installing the **ELUTRON®** tank. To activate the **PLASTEEL® ELUTRON®** Tank Warranty, a completed and signed Certificate of Installation for the **PLASTEEL® ELUTRON®** 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 **ELUTRON®** tank must not exceed 150° (66° C). The **ELUTRON®** 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. **ELUTRON®** 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 holddown assemblies required when using a concrete pad under the tank. You

may set and securely anchor the **ELUTRON®** 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 **ELUTRON®** 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

PRE-INSTALLATION: Aboveground, prior to replacement of tank in excavation, precisely follow one of the three testing options cited in Appendix A attached. Do not deviate from these procedures. If the **ELUTRON®** tank is delivered with a vacuum on the interstice, refer to Option #2 of Appendix A.

CAUTION: IF OPTION #3 IS USED, DO NOT APPLY ANY PRESSURE TO THE INTERSTICE BEFORE THOROUGHLY UNDERSTANDING AND FAITHFULLY FOLLOWING THE PROCEDURES CITED IN OPTION #3 OF APPENDIX A. DAMAGE TO TANK MAY OCCUR IF YOU DEVIATE FROM THE PROCEDURES AND SPECIFICATIONS.

POST-INSTALLATION: Complete the backfill procedures to the top of the tank. Complete all piping and connections ensuring that unused openings are secured tight with threaded steel plugs. Apply a 5 PSIG pressure test in the primary tank and check for tightness of piping connections and tank manhole covers. Gauge should be checked prior to testing for accuracy and have a maximum limit of 15 PSIG.

CAUTION: THE PRIMARY TANK TEST PRESSURE SHALL NOT EXCEED 5 PSIG. DAMAGE TO TANK MAY OCCUR. ISOLATE PIPING FROM TANK BEFORE TESTING THE PIPING AT HIGHER PRESSURES.

The interstice (annular space) will be tested using option #2 or #3 in Appendix A.

OPTION: Request Appendix B for procedures to perform the Interstitial Vacuum Test that has been third party evaluated to meet the EPA tank tightness test protocol.

VII. VENTING

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 INTERSTITIAL SPACE.

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 **ELUTRON®** 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 or (1) 4 Oz.
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

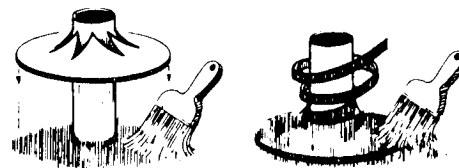
Resin and catalyst must be mixed in the proper proportions so that the resin will harden properly. Below is a list of some various size batches you could mix.

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.

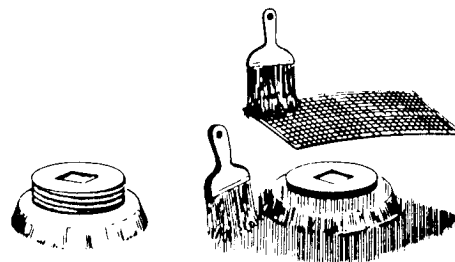


e. Pipe and Risers

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 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 **ELUTRON®** 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® ELUTRON®** tank factory below:

Licensed PLASTEEL® ELUTRON® tank manufacturers

DPE Klang Selangor, Malaysia	ERMETRA INDUSTRIA Betim, Brazil	INDUSTRIAS CORREAGUA Panama, Panama	INSTALL RZESZOW Rzeszow, Poland	HALL TANK CO. N. Little Rock, AR (501) 945-3211 Fax (501) 945-4477	K & T STEEL Twin Falls, ID (208) 733-2554 Fax (208) 733-7239	METAL PRODUCTS Suwanee, GA (770) 945-8383 Fax (770) 932-5671	METALURGICA RIMA Guaira, Brazil	TANX INC. Claremont, NH (603) 543-1272 Fax (603) 543-1270	TALLER EL RETOÑO C.A. Barquisimeto, Venezuela
DTE Perth, Australia	INDUSTRIA ACERO Quito, Ecuador	INMSA ARGO San Pedro Sula, Honduras					TANQUES GUMEX Torreon, Mexico		TECNOECO CHILE Santiago, Chile

PLASTEEL® ELUTRON® Double-Wall Tank

APPENDIX A

INSTALLATION SITE TESTING PROCEDURES

Option #1: EXTERIOR HOLIDAY TEST

Prior to arrival of the Elutron® tank at the installation site, coordinate with the Elutron® manufacturer to have a 12,500 volt holiday test performed using a Tinker-Rasor, Model APW, tester. Any pinholes detected must be repaired using the Plasteel® sealing kit materials. Re-test and repair until tank is pinhole free. This test must be performed by a person qualified by the Elutron® tank manufacturer.

Option #2: VACUUM TEST INTERSTICE

The Elutron® 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 #3: PRESSURE TEST INTERSTICE

If a field pressure test is required, set-up test equipment per the schematic diagram and precisely follow the test procedures listed.

CAUTION: DAMAGE TO TANK MAY OCCUR IF PRESSURE IN THE INTERSTICE EXCEEDS 2 PSIG ABOVEGROUND.

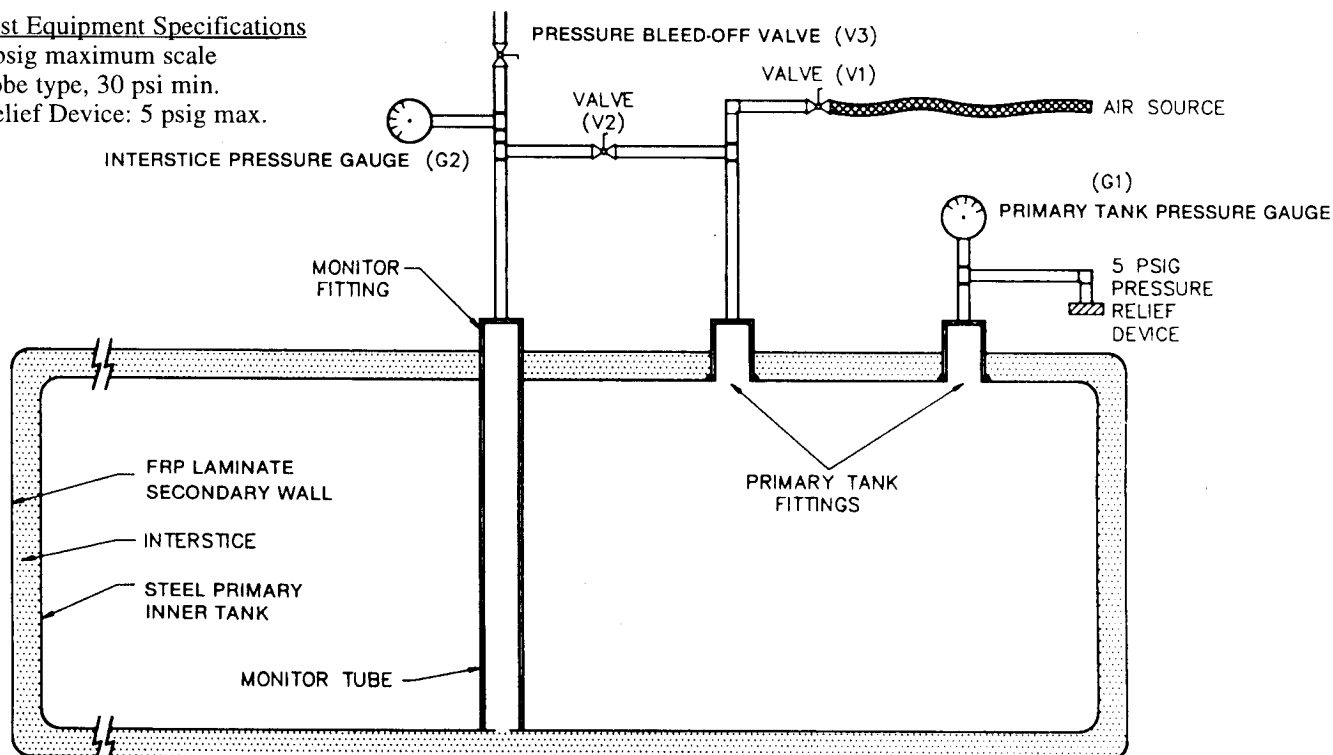
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|---|---|
| <p>Step 1. Ensure gauges are accurately calibrated.</p> <p>2. Ensure all connections are leak tight.</p> <p>3. Close V2, open V3, G2 should read zero.</p> <p>4. Open V1, pressurize primary tank until G1 reads 3-5 psig, close V1. Disconnect air source.</p> <p>5. Close V3, after 30 minutes, check G2. G2 should read zero. (Call factory if G2 does not read zero.)</p> <p>6. Open V1 and decrease G1 to 11/2 - 2 psig. Close V1.</p> <p>7. Open V2, pressurize G2 to 11/2 - 2 psig. Close V2. DO NOT EXCEED 2 PSIG ON G2. DAMAGE TO TANK MAY OCCUR.</p> | <p>8. Observe G2 for 30 minutes. G2 should remain at 11/2 - 2 psig. (Call factory if G2 decreases to zero.)</p> <p>9. Open V3, vent interstice, G2 to read zero.</p> <p>10. Open V1, vent primary tank, G1 to read zero. Test complete.</p> <p>NOTE: If the Elutron® tank is covered with backfill, you may test the interstice at 3-5 PSIG, following steps #1-10, and carefully increasing the pressure in step #7 to 3-5 PSIG. In step #8, G2 should remain at 3-5 PSIG.</p> <p>CAUTION: DAMAGE MAY OCCUR IF INTERSTICE PRESSURE EXCEEDS 5 PSIG. WHEN TANK IS COVERED WITH BACKFILL.</p> |
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Pressure Test Equipment Specifications

Gauges: 5 psig maximum scale

Valves: Globe type, 30 psi min.

Pressure Relief Device: 5 psig max.



Licensed PLASTEEL® ELUTRON® tank manufacturers

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DTE Perth, Australia	INDUSTRIA ACERO Quito, Ecuador	INMSA ARGO San Pedro Sula, Honduras					TANQUES GUMEX Torreon, Mexico		TECNOECO CHILE Santiago, Chile

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 not 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:

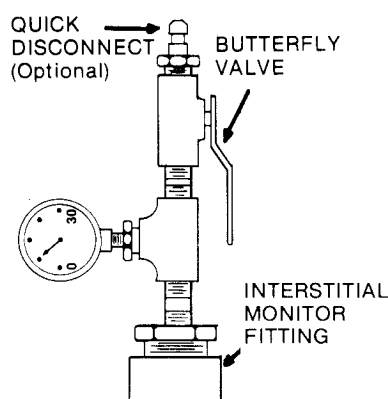


FIGURE 5.0: VACUUM GAUGE TEST ASSEMBLY (TYPICAL).
ACCURACY: ASME (ANSI) GRADE B, ± 2%, 0-30" Hg, with 1" Hg GRADUATIONS.

- 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

INSTALL RZESZOW Rzeszow, Poland	INDUSTRIA ACERO Quito, Ecuador	HALL TANK CO. N. Little Rock, AR (501) 945-3211 Fax (501) 945-4477	JOOR MFG. Escondido, CA (760) 745-0971 Fax (760) 746-9515	K & T STEEL Twin Falls, ID (208) 733-2554 Fax (208) 733-7239	METAL PRODUCTS Suwanee, GA (770) 945-8383 Fax (770) 932-5671	TANX INC. Claremont, NH (603) 543-1272 Fax (603) 543-1270	SHINWON INDUSTRY Seoul, Korea	TANQUES GUMEX Torreon, Mexico	TECNOECO ARGENTINA Buenos Aires, Argentina
INDUSTRIAS CORREA Panama, Panama	JAPAN STEEL WORKS Tokyo, Japan						TECNOECO CHILE Santiago, Chile	TVG Tab, Hungary	METALURGICA RIMA Guaira, Brazil

CERTIFICATE OF INSTALLATION

FOR THE

PLASTEEL® ELUTRON® 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 tank owner or owner's 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® ELUTRON®** Tank Installation Instructions attached hereto.

Return completed and signed certificate to the manufacturer within 60 days of the installation completion date to activate warranty.

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: JACKETED	_____	_____
VIII. PLASTEEL® SEALING PROCEDURES	_____	_____

INSTALLATION DESCRIPTION

INSTALLATION SITE

ADDRESS _____

CITY, STATE, ZIP _____

PLASTEEL® TANK OWNER

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

SIGNATURE _____

DATE _____

ELUTRON® 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 _____

U.L. SERIAL NUMBER _____

TANK INSTALLATION COMPLETION DATE _____

INSTALLATION COMPANY

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

() _____

TELEPHONE _____

INSTALLATION COMPLETION/SUPERVISOR'S SIGNATURE

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

SIGNATURE _____

DATE _____

PRINT NAME _____

YOUR PLASTEEL® TANK MANUFACTURER IS:

NAME _____

ADDRESS _____

CITY, STATE, ZIP _____

() _____

TELEPHONE _____

RETURN COMPLETED FORM TO MANUFACTURER TO ACTIVATE WARRANTY

CERTIFICATE OF COMPLETION

Interstitial Vacuum Test (IVT)

For The PLASTEEL® Double-Wall Underground Tank

- I. Third Party Evaluation:** This leak tightness test method has been third party evaluated per the Alternate EPA Test Protocols for Plasteel International. The third party environmental consulting firm that performed the evaluation was:

Ken Wilcox Associates, Inc.
19401 E. 40 Highway, Suite 100
Independence, MO 64055
(816) 795-7997

A copy of the evaluation is on file at each licensed PLASTEEL® tank manufacturer and at:

Plasteel International Inc.
2541 State Street
Carlsbad, CA 92008
(760) 729-1093

II. Tank Description:

Capacity: _____ Gallons

Jacketed: _____

Composite: _____

Compartmented: Yes _____ No _____

U.L. Number _____

Tank Manufacturer:

Name: _____

Address: _____

III. Installation Information:

Tank Owner:

Name: _____

Address: _____

Installation Location: _____

- IV. Test Results:** The interstitial vacuum test was performed per Appendix B. The following data was recorded:

Nominal Tank Capacity: _____
(Gallons)

Primary Tank Product: _____
(air, gasoline, diesel, water)

Required Test Period: _____
(Hours, per Appendix B, Figure 6.0)

Initial Gauge Reading: _____ inches Hg.
Date _____ Time _____ am/pm

Final Gauge Reading: _____ inches Hg.
Date _____ Time _____ am/pm

Total Elapsed Time Period: _____
(Hours)

Pass _____ Fail _____ (Initial)

- V. Statement of Test:** I certify that the PLASTEEL® Double-Wall tank described above has been tested leak tight per Appendix B of the PLASTEEL® Tank Installation Instructions.

Testing Company:

Name: _____

Address: _____

Telephone: _____

Signature _____

Printed Name _____

Title _____

Date _____