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11 September 1987
SUPERSEDING
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30 January 1981

MILITARY SPECIFICATION

PIPE AND PIPE FITTINGS, GLASS FIBER REINFORCED PLASTIC, FOR LIQUID PETROLEUM LINES

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers a reinforced plastic pipe and fittings system made from epoxy or polyester resin and glass fiber reinforcement, together with adhesive for joint assembly, intended for service up to 150 degrees Fahrenheit (°F) and 150 pound-force per square inch (psi) operating pressure and surges up to 275 psi in liquid petroleum lines installed below ground.

1.2 Classification.

1.2.1 Pipe. The reinforced plastic pipe shall be of the following types, as specified (see 6.2.1).

Type I - Filament wound.
Type II - Centrifugally cast.

1.2.2 Fittings. The reinforced plastic fittings shall be of the following types (see 6.3 and 6.5):

Type I - Filament wound.
Type II - Molded.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N4187 FSC 4710

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636 - Boxes, Shipping, Fiberboard.

MILITARY

MIL-T-5624 - Turbine Fuel, Aviation, Grades JP-4 and JP-5.
MIL-T-38219 - Turbine Fuel, Low Volatility, JP-7.
MIL-C-52950 - Crate, Wood, Open and Covered.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(Copies of specifications, standards and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DODISS shall be the issue of the non-Government documents which is current on the date of the solicitation.

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

B16.5 - Steel Pipe Flanges and Flanged Fittings.

(Application for copies should be addresssed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D381 - Test for Existent Gum in Fuels by Jet Evaporation.
D1599 - Test for Short-Time Hydraulic Failure of Plastic Pipe, Tubing, and Fittings.
D2310 - Classification for Machine-Made Reinforced Thermosetting Resin Pipe.
D2412 - Test for External Loading Properties of Plastic Pipe by Parallel Plate Loading.
D3241 - Test for Thermal Oxidation Stability of Aviation Turbine Fuels (JFTOT Procedure).
D3567 - Practice for Determining Dimensions of Reinforced Thermosetting Resin Pipe (RTRP) and Fittings.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Non-Government standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The reinforced plastic pipe shall be round and straight, and the pipe and fittings shall be of uniform density, resin content, and surface finish. All pipe ends shall be cut at right angles to the axis of the pipe and any sharp edges removed. The bore of the pipe and fittings shall have a smooth, uniform surface with no exposed fibers and may contain a liner. The liner, if used, shall be composed of a compatible resin formulation and may contain a reinforcement.

3.2 Material. The pipe and fittings shall be made from epoxy or polyester (including vinyl ester) resins and glass fiber reinforcement of commercial first quality. Fillers, colorants, and other materials may be added, provided the pipe and fittings meet all the requirements of this specification. Epoxy pipe shall be joined only with epoxy fittings and polyester pipe shall be joined only with polyester fittings.

3.3 Dimensions.

3.3.1 Pipe. The pipe shall be 2, 3, 4, 6, 8, 10, 12, 14, or 16-inch nominal size, as specified (see 6.2.1), and shall have the dimensions and tolerances shown in table I. The dimensions shall be measured in accordance with ASTM D3567.

TABLE I. Dimensions of pipe.

Nominal pipe size, inches	Outside diameter, inches	Tolerance, inches	
		Type I	Type II
2	2.375	+0.060 -0.018	±0.012
3	3.500	+0.060 -0.018	±0.012
4	4.500	+0.060 -0.018	±0.015
6	6.625	+0.066 -0.028	±0.025
8	8.625	+0.086 -0.040	±0.025
10	10.750	+0.108 -0.048	±0.025
12	12.750	+0.128 -0.056	±0.025
14	14.000	+0.145 -0.064	±0.035
16	16.000	+0.165 -0.074	- - -

3.3.1.1 Length. Pipe lengths shall be as specified by agreement between the purchaser and supplier (see 6.2.1 and 6.6).

3.3.1.2 Wall thickness. The minimum wall thickness of the pipe shall be not less than 87.5 percent of the nominal wall thickness published in the manufacturer's literature current at the time of purchase.

3.3.2 Fittings. Fittings shall be 2, 3, 4, 6, 8, 10, 12, 14, or 16-inch nominal size, as specified (see 6.2.1), and shall have dimensions suitable for joining to the pipe and enabling the pipe and fitting joint to meet the requirements of this specification. For purposes of this specification, fittings shall include couplings and flanges.

3.3.2.1 Flanges. Flanges shall conform to the bolt hole sizes and pattern for 150-pound (lb) steel flanges in ANSI B16.5.

3.4 Adhesive. Adhesive for joint assembly shall be a material suitable for providing a permanent seal between the pipe and fittings in continuous service up to 150°F and 150 psi with surges to 275 psi. The adhesive shall be supplied as a kit which includes containers of all components in the amounts needed for each adhesive mixture. Instructions for use shall be marked on each container or listed on an instruction sheet included in each adhesive kit. When specified (see 6.2.1 and 6.4), adhesive kits shall be furnished in a sufficient quantity, as recommended by the supplier for the particular procurement of pipe and fittings.

3.5 Joint strength. Pipe, fittings, adhesive, and joints shall show no porosity or other evidence of failure when tested in accordance with 4.4.2.

3.6 Hydrostatic strength. The pipe fittings, adhesive, and joints shall withstand a hydrostatic pressure of 300 psi without any indication of porosity, delamination, splitting, or other evidence of failure when tested in accordance with 4.4.3.

3.7 Impact resistance. Pipe and fittings shall show no porosity or visual evidence of damage that would affect serviceability when tested in accordance with 4.4.4.

3.8 Boil resistance. Pipe and fittings shall show no evidence of delamination or other impairment and shall have a weight gain no greater than 1.0 percent when tested in accordance with 4.4.5.

3.9 External load resistance. When tested as specified in 4.4.6, the pipe shall show no visual evidence of cracking, crazing, or other damage that could allow leakage of fuel through the pipe wall at 5 percent deflection, and no visual evidence of delamination, rupture, or other structural damage at 10 percent deflection.

3.10 Degradation resistance.

3.10.1 Pipe and fittings. Pipe and fittings exposed to JP-5 and JP-7 fuels in accordance with 4.4.6 shall exhibit no visual evidence of deterioration as a result of exposure to the fuels and shall have short-time rupture strengths not less than 90 percent of the short-time rupture strengths of unexposed pipe and fittings when tested as specified in 4.4.7.1.

3.10.2 Fuels. JP-5 and JP-7 fuels contained within pipe and fittings in accordance with 4.4.6 shall not vary from control samples of the fuels in thermal stability and existent gum properties when tested as specified in 4.4.7.2.

3.11 Hydrostatic proof test. Pipe and fittings shall withstand a hydrostatic pressure of 225 psi without any indication of porosity when tested in accordance with 4.4.8.

3.12 Identification marking.

3.12.1 Pipe. Each length of pipe shall be marked at intervals of not more than 15 feet. Each marking shall include at least the manufacturer's name or trademark, the nominal pipe size, and the type of reinforced plastic pipe. The type of reinforced plastic pipe may be designated in accordance with ASTM D2310 or some other easily identifiable system. The marking shall be of a contrasting color and a type that remains legible under normal handling and installation procedures.

3.12.2 Fittings. Each fitting shall be marked with at least the manufacturer's name or trademark and the nominal size. The marking shall be of a contrasting color and a type that remains legible under normal handling and installation procedures.

3.12.3 Adhesive. Each container shall be marked with at least the manufacturer's name or trademark, adhesive component type, expiration date, special storage conditions, handling precautions, and instructions for use (if a separate instruction sheet is not included in the adhesive kit).

3.13 Workmanship. The pipe and fittings shall be free from all defects including delaminations, cracks, indentations, bubbles, pinholes, porosity, resin rich areas, and resin starved areas which due to their nature, degree, or extent, detrimentally affect the strength and serviceability of the pipe and fittings. The liner, if used in the pipe or fittings, shall be free of cracks, chips, or other damage.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Material inspection. The contractor is responsible for insuring that supplies and materials are inspected for compliance with all the requirements specified herein and in applicable referenced documents.

4.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.3, the tests of 4.4, and the packaging inspection of 4.6.

4.2.1 Lot. When a certificate of compliance is not acceptable, each lot shall contain sufficient pipe, fittings, and adhesive kits to perform all the destructive tests specified herein (see 4.2.3, 4.4 (except hydrostatic proof test), and 4.5).

4.2.1.1 Pipe. All pipe of the same type and nominal size offered for delivery at the same time under a contract shall be considered a lot for purposes of inspection.

4.2.1.2 Fittings. All fittings of the same type, kind, and nominal size offered for delivery at the same time under a contract shall be considered a lot for purposes of inspection.

4.2.1.3 Adhesive. All adhesive kits offered for delivery at the same time under a contract shall be considered a lot for purposes of inspection.

4.2.2 Sampling for examination. A random sample of pipe, fittings, and adhesive kits shall be selected from each lot in accordance with MIL-STD-105, using inspection level II and an Acceptable Quality Level (AQL) of 4.0 percent defective. Sample pipe and fittings selected shall be examined in accordance with 4.3.1 and 4.3.2.

4.2.3 Sampling for tests (except hydrostatic proof test). Sufficient samples of pipe, fittings, and adhesive kits to perform the tests shall be selected at random from each lot (see 4.2.1 and 4.4). Unless otherwise specified in the individual test paragraphs, three determinations shall be made for each test on test specimens removed from the samples. If more than one specimen fails to pass any test, the lot shall not be acceptable. If one specimen fails to pass any test, that test shall be repeated on three additional specimens taken from new samples selected at random from the lot, and the lot shall be acceptable only if none of the additional specimens fail the test.

4.2.4 Sampling for hydrostatic proof test. A random sample of pipe and fittings shall be selected from each lot in accordance with MIL-STD-105, using inspection level II and an AQL of 1.0 percent defective, and shall be tested in accordance with 4.4.8.

4.3 Examination.

4.3.1 Pipe and fittings. Sample pipe and fittings selected in accordance with 4.2.2 shall be examined for the following defects: incorrect dimensions; ends of pipe not cut at right angles to the axis; exposed fibers or nonuniform surface on bore of pipe or fittings; liner, if used, cracked or chipped; bubbles, pinholes, delaminations, cracks, indentations, resin rich or resin starved areas in the outer wall that will affect the strength and performance of the product; and incorrect or missing identification marking. Any sample pipe or fitting having one or more of the defects listed shall be considered a defective unit.

4.3.1.1 Dimensions. Pipe and fitting dimensions shall be determined in accordance with the applicable sections of ASTM D3567.

4.3.2 Adhesive. Sample adhesive kits selected in accordance with 4.2.2 shall be examined for missing adhesive components, missing instructions for use, and missing or incorrect identification marking. Any sample adhesive kit having one or more of the defects listed shall be considered a defective unit.

4.4 Tests. Sample pipe, fittings, and adhesive kits selected in accordance with 4.2.3 and 4.2.4 shall be subjected to the tests specified in 4.4.2 through 4.4.8. Any sample failing to pass any of these tests shall be considered a defective unit.

4.4.1 Test conditions. Unless otherwise specifed in the test method, test specimens shall be conditioned for not less than 48 hours in a room maintained at 60 to 90°F, and tested at the same temperature range. Unless otherwise specified, the test pressure in the individual test methods shall have a tolerance of +10 psi and -0 psi.

4.4.2 Joint strength. Joint assemblies containing the pipe, fittings, and adhesive shall be fabricated. The adhesive shall be applied and cured as under field conditions in accordance with the manufacturer's printed instructions. The completed test section shall be either an assembly containing the pipe and each kind of fitting to be furnished under a contract, or simply one fitting joined between two pieces of pipe. When a section containing just one fitting is used, then similar test sections containing the other kinds of fittings to be furnished must also be tested. If the test section containing the one fitting is used, the longest end-to-end dimension shall be 18 inches or seven times the outside diameter of the pipe, whichever is greater, but no longer than 84 inches. If the test section contains more than one fitting, the pipe length between fittings shall be 6 inches or three times the outside diameter of the pipe, whichever is greater. The test section shall be subjected to a hydrostatic pressure of 275 psi at 150°F for 168 hours. The liquid medium shall be water and shall contain a soluble fluorescent dye. Observations with an ultraviolet lamp shall be made each 24 hours for porosity or other evidence of failure of the pipe, fittings, or joints. Pipe, fittings, adhesive and joints shall show no evidence of failure or porosity as required in 3.5.

4.4.3 Hydrostatic strength. The test consists of filling a pipe and fitting test assembly, bonded with the adhesive to be furnished, with fresh water containing a soluble fluorescent dye at room temperature and cycling the pressure between zero and 300 psi for 1,000 cycles. The assembly shall contain one or more of the fittings to be furnished under a contract. The minimum test assembly size shall be 6 feet if one fitting is tested. If multiple fittings are tested in the assembly, the pipe length between fittings shall be 2 feet, minimum. Approximately 5 to 10 seconds shall be used to apply the 275 psi pressure followed by a 30 second dwell at that pressure, and then immediate removal of the pressure followed by a 30 second dwell at zero pressure. The specimen shall have failed the test if it cannot maintain the 275 psi pressure before the completion of the 1,000 pressure cycles. If the 1,000 pressure cycles are completed, the specimen shall be pressurized to 275 psi for 2 hours, at the end of which time the specimen shall be examined with an ultraviolet lamp for porosity. The pressure shall then be removed and the specimen emptied of water and visually examined for other evidence of failure. Pipe fittings, adhesive, and joints shall conform to the requirements of 3.6.

4.4.4 Impact resistance. Pipe and fittings shall be subjected to a falling ball test and a drop test as specified below and shall conform to the requirements in 3.7.

4.4.4.1 Falling ball test. A steel ball, 2 inches in diameter and weighing approximately 1.2 lb shall be dropped squarely onto the surface of the pipe or fitting specimen with a free fall (which may be guided) from a height of 1 foot. The pipe specimen shall be a minimum of 2 feet in length and the fitting specimen shall be the complete fitting. The ball may be caught or deflected after the hit so that the rebound does not hit the specimen. The specimen shall be full of water containing a soluble fluorescent dye, but not pressurized. The test shall be made at room temperature and the specimen shall be supported on a solid, flat support. Four drops shall be made on randomly selected areas of the pipe specimen, 90° clockwise from each other. One drop shall be made on the fitting specimen. The specimen shall then be pressurized to 225 psi and shall remain at this pressure for 168 hours, at the end of which time the specimen shall be examined for porosity with an ultraviolet lamp and then emptied and examined for evidence of damage.

4.4.4.2 Drop test. Specimens of pipe and fittings shall be dropped onto a concrete floor from a height of 4 feet. The pipe specimen shall be a minimum of 2 feet in length and the fitting specimen shall be the complete fitting. The test shall be conducted at room temperature. The specimen shall be empty and shall be dropped parallel to the floor. All bore center lines of the fitting specimen shall be horizontal when striking the floor. Following the drop, the specimen shall be examined for evidence of damage and then filled with water containing a soluble fluorescent dye and pressurized to 275 psi. The specimen shall remain at this pressure for 168 hours and then shall be examined for porosity with an ultraviolet lamp.

4.4.5 Boil resistance. A test specimen, 1.5 inches in length, shall be cut from the sample pipe. Fittings shall be tested using either the whole fitting or a 1.5-inch length cut from the fitting. The test specimens shall be conditioned for 8 hours at 200°F, desiccated, and an initial weighing made. The specimens shall be suspended in a boiling distilled water bath for 3 hours. The specimens shall be removed one at a time, blotted dry of excess water, and weighed. This weighing shall be made within 1.5 minutes after removal from the bath. After weighing, the specimens shall be visually examined for delamination or other evidence of impairment and the percentage weight gain of the specimens shall be calculated as follows:

$$\text{Percent weight gain} = \frac{B - A}{A} \times 100$$

Where: A = initial weight
B = weight after immersion

Tested specimens shall meet weight gain and visual inspection requirements as specified in 3.8.

4.4.6 External load resistance. The pipe shall be tested in accordance with ASTM D2412. The test specimens shall be visually examined at 5 percent deflection for evidence of cracking, crazing, or other damage that could allow leakage of fuel through the pipe wall, and examined again at 10 percent deflection for evidence of delamination, rupture, or other structural damage. When tested as specified, the pipe shall meet visual inspection criteria as set forth in 3.9.

4.4.7 Degradation resistance. Test specimens of pipe and fittings shall be filled with JP-5 and JP-7 fuels and stored for 90 days at 75°F, ±15°F. If all nominal sizes of pipe are fabricated in the same way and with the same materials, only one size of pipe need be tested and test specimens shall be obtained from samples of that size selected in accordance with 4.2.3. If all nominal sizes of fittings are fabricated in the same way and with the same materials, only elbows and tees of one size need be tested. One end of the pipe test specimens shall be sealed utilizing the adhesive for joint assembly so that the adhesive will be in contact with the fuels. The JP-5 fuel shall conform to MIL-T-5624, and the JP-7 fuel shall conform to MIL-T-38219. Following the 90-day storage period, the fuels shall be poured into stainless steel cans labeled with the type of fuel and the pipe or fitting from which the fuel was poured. The pipe, fittings, and fuels shall then be tested as specified below.

4.4.7.1 Pipe and fittings. The test specimens from which the fuels were removed shall be examined for visual evidence of deterioration from contact with the fuels and then shall be tested in accordance with ASTM D1599 to determine their short-time rupture strengths. The same test shall be performed on similar test samples maintained in the same room during the 90-day storage period, but not in contact with the test fuels. The percent difference between the rupture strengths of the exposed and unexposed specimens shall be determined. Visual inspections and rupture strengths shall meet the criteria of section 3.10.1.

4.4.7.2 Fuels. The JP-5 and JP-7 fuels removed from the pipe and fitting test specimens shall be tested for thermal stability in accordance with ASTM D3241 and for existent gum in accordance with ASTM D381. The same tests shall also be performed on JP-5 and JP-7 fuels which had been stored in stainless steel cans in the same room as the filled pipe and fitting specimens during the 90-day storage period. The thermal stability and existent gum properties of the exposed and unexposed fuels shall be compared and must comply with 3.10.2.

4.4.8 Hydrostatic proof test. The pipe and fittings shall be filled with water and pressurized to 275 psi. The test shall be conducted at room temperature. The pipe and fittings shall remain under pressure for not less than 5 minutes and then shall be examined for porosity while still under pressure. The pipe and fittings tested shall conform to the requirements of 3.11.

4.5 Certificate of compliance. When specified (see 6.2.1 and 6.2.2), a certificate of compliance shall be submitted to the procuring activity and shall be acceptable as proof that the products being offered meet all the

destructive test requirements of this specification, provided the contractor furnishes actual tests results, acceptable to the Government, indicating that destructive tests have been performed to substantiate the certification. The certificate shall state that the tests have been performed on products manufactured from the same materials and by the same manufacturing processes as the items being offered, and that any proposed changes in material or processes will be promptly reported to the Government. The Government reserves the right to require additional testing and certification by the contractor when such changes are made or when otherwise deemed necessary.

4.6 Packaging inspection. The preservation, packing, and marking of the pipe and fittings, and adhesive kits when furnished, shall be examined to determine conformance to the requirements of section 5 of this specification.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or C, as specified (see 6.2.1).

5.1.1 Level A. Pipe shall have the open ends sealed with suitable caps or plugs. When kits of adhesive are furnished, they shall be packaged in boxes conforming to PPP-B-636, weather-resistant. Contents of boxes shall be cushioned to prevent movement within the boxes.

5.1.2 Level C. The pipe and fittings, and kits of adhesive, when furnished, shall be packaged in accordance with the contractor's standard practice.

5.2 Packing. Packing shall be level A or C, as specified (see 6.2.1).

5.2.1 Level A.

5.2.1.1 Pipe. Unless otherwise specified (see 6.2.1), the pipe shall be packed in open wood crates conforming to MIL-C-52950, style B, type III, with a maximum net load of 500 lb.

5.2.1.2 Fittings. The fittings shall be packed in close-fitted boxes conforming to PPP-B-601, overseas type or PPP-B-621, class 2. Contents of boxes shall be cushioned, blocked, and braced to prevent movement of and damage to contents.

5.2.1.3 Adhesive. Kits of adhesive, when furnished, shall be packed as specified for fittings.

5.2.2 Level C. The pipe and fittings, and adhesive, when furnished, shall be packed in a manner which will insure arrival at destination in a satisfactory condition. Containers and packing shall comply with applicable carrier rules and regulations.

5.3 Marking. Interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The pipe and fittings covered by this specification are intended for carrying liquid petroleum fuels in service up to 150°F and 150 psi operating pressure and surge pressures up to 275 psi in below ground applications only. The total design pressure of the system, including operating pressure plus surge pressure, is 275 psi. The pipe and fittings may be suitable for other uses, but consideration should be given to the necessity of evaluating these products for the specific requirements of those applications before the products are used.

6.2 Ordering data. Purchasers should exercise any desired options offered herein, and acquisition documents should specify the following:

6.2.1 Acquisition requirements.

a. Title, number, and date of this specification.
b. Size of pipe required and length (see 3.3.1, 3.3.1.1, and 6.6).
c. Kind and size of fittings required (see 3.3.2).
d. Whether adhesive kits are to be provided (see 3.4 and 6.4).
e. If a certificate of compliance is not acceptable (see 4.5).
f. Level of preservation and level of packing required (see 5.1 and 5.2).
g. When packing of pipe for level A is other than specified (see 5.2.1.1).

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved DD Form 1664, Data Item Description (DID), and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of DoD Federal Acquisition Regulations Supplement 27.475-1 are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs:

Paragraph No.	Data requirements title	Applicable DID No.
4.5	Certificate of compliance	DI-E-2121

(DIDs related to this specification, and identified in section 6 will be approved and listed as such in DoD 5010.12L, Acquisition Management Systems and Data Requirements Control List. Copies of DIDs required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.3 Fittings. The fittings covered by this specification are classified as filament wound and molded (see 1.2.2). The term "molded" is used to describe those fittings manufactured by compression molding, contact molding, or hand fabrication. Some fittings may be available which are manufactured using two or more of the above methods.

6.4 Adhesive. When pipe and fittings are being procured for stock and will be stored for more than 1 year before use, the adhesive kits should not be ordered at the same time since the adhesive might have a limited shelf life.

6.5 Joints. Different joint systems, such as tapered socket or untapered socket joints and adhesives with properties based on the requirements of the specific pipe and fittings to be joined, are used by reinforced plastic pipe and fitting manufacturers. Therefore, to assure that joints are assembled properly, only pipe, fittings, and adhesive furnished by the same manufacturer should be used together.

6.6 Pipe lengths. Pipe covered by this specification is usually available in standard laying lengths of 10, 20, 40, and 60 feet, special order lengths, and random lengths that may vary up to 25 percent from the standard laying length specified (see 3.3.1.1). Exact lengths may be more expensive per foot than random lengths.

6.7 Subject term (key word) listing.

Reinforced plastic pipe
Pipe
Pipe fittings
Glass fiber reinforced
Liquid petroleum
Adhesive

6.8 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:
Army - ME
Navy - YD

Preparing Activity:
Navy - YD

(Project 4710-0852)

Review Activities:
Navy - SH
DLA - CS

User Activities:
Army - CE
Air Force - 04

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge *(DO NOT STAPLE)*, and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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DEPARTMENT OF THE NAVY

Commanding Officer (Code 156)
Naval Construction Battalion Center
Port Hueneme, CA 93043-5000

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-P-29206A	PIPE AND PIPE FITTINGS, GLASS FIBER REINFORCED PLASTIC, FOR LIQUID PETROLEUM LINES

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION (Mark one)
	☐ VENDOR
b. ADDRESS (Street, City, State, ZIP Code)	☐ USER
	☐ MANUFACTURER
	☐ OTHER (Specify):

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) – Optional	b. WORK TELEPHONE NUMBER (Include Area Code) – Optional
c. MAILING ADDRESS (Street, City, State, ZIP Code) – Optional	8. DATE OF SUBMISSION (YYMMDD)

DD FORM 82 MAR 1426 PREVIOUS EDITION IS OBSOLETE.