

L-M-530b

September 14, 1961

SUPERSEDING

Fed. Spec. L-M-530a

August 18, 1958

(See 6.4)

FEDERAL SPECIFICATION**MOLDING PLASTIC, POLYVINYL CHLORIDE, RIGID**

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the requirements for rigid polyvinyl chloride molding and extruding compounds (see 6.1).

1.2 Classification.

1.2.1 Types, classes, and grades. Polyvinyl chloride compounds covered by this specification shall be of the following types, classes, and grades, as specified (see 3.1, 6.1, and 6.2).

Type I—High rigidity and chemical resistance.

Class 1—Maximum rigidity and chemical resistance.

Class 2—Maximum rigidity and good chemical resistance.

Class 3—Good rigidity and maximum chemical resistance.

Type II—High impact and chemically resistant.

Type III—General purpose.

Grade GU—General use.

Grade E—Electrical quality.

Grade NT—Non-toxic according to intended use.

2. APPLICABLE SPECIFICATIONS, STANDARDS, AND OTHER PUBLICATIONS

2.1 Specifications and standards. The following specifications and standards, of the issue

in effect on date of invitation for bids, form a part of this specification to the extent specified herein.

Federal Specifications:

L-P-406—Plastics, Organic; General Specifications, Test Methods.

PPP-D-723—Drums, Fiber.

PPP-D-729—Drums; Metal, 55 Gallon (for Shipment of Noncorrosive Materials).

Federal Standards:

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.

Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications, Standards, and Handbooks and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, Seattle, and Washington, D. C.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications, Standards, and Handbooks from established distribution points in their agencies.)

L-M-530b**Military Specifications:**

JAN-P-112—Packaging and Packing for Overseas Shipment, Drums, Plywood (for Drums Whose Weight of Contents Does Not Exceed 200 Pounds).

Military Standards:

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

American Society For Testing Materials Publications:

ASTM D149-55T—Test for Dielectric Breakdown Voltage and Dielectric Strength of Electrical Insulating Materials at Commercial Power Frequencies (Tentative).

ASTM D150-54T—Test for A-C Capacitance, Dielectric Constant, and Loss Characteristics of Electrical Insulating Materials (Tentative).

ASTM D256-56—Test for Impact Resistance of Plastics and Electrical Insulating Materials.

ASTM D257-58—Test for Electrical Resistance of Insulating Materials.

ASTM D471-57T—Test for Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids (Tentative).

ASTM D543-60T—Test for Resistance of Plastics to Chemical Reagents (Tentative).

ASTM D618-58—Methods of Conditioning Plastics and Electrical Insulating Materials for Testing.

ASTM D635-56T—Test for Flammability of Rigid Plastics over 0.050 inch in Thickness (Tentative).

ASTM D638-58T—Test for Tensile Properties of Plastics (Tentative).

ASTM D648-56—Test for Deflection Temperatures of Plastics Under Load.

ASTM D790-58T—Test for Flexural Properties of Plastics (Tentative).

(Copies may be purchased directly from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa.)

3. REQUIREMENTS

3.1 Material and grade. The material shall consist of compression, injection, or extrusion molding compounds of polyvinyl chloride, without any liquid or polyester types of plasticizers. Unless otherwise specified, all types and classes shall be furnished in grade GU.

3.1.1 When grade E is specified, all types and classes furnished shall meet the electrical quality requirements of 3.2 and 3.2.1.

3.1.2 When grade NT is specified, the material of all types and classes furnished shall be formulated so as to meet the nontoxicity requirements of 3.5.

3.2 Physical and mechanical properties. All material shall conform to the applicable properties listed in table I.

3.2.1 All material furnished to grade E requirements shall, in addition, conform to the properties listed in table II.

3.2.2 Property requirements shall be verified by testing compression molded specimens in accordance with the applicable methods described in 4.6. Unless otherwise specified, the values obtained from each set of specimens tested for a particular property shall be averaged, and the resulting value shall comply with the appropriate requirement.

3.3 Molding properties. When specified, the material shall conform to requirements for apparent density, flow properties, and particle size, range, and shape (see 6.2). Tests or standards for determining the properties shall also be as specified (see 6.2).

3.4 Suitability for use with explosives or chemicals. When suitability for use with a particular explosive or chemical is specified, the material furnished shall be made only of a compound which has been approved by the procuring agency for this service (see 6.2). A compound not previously approved shall be sub-

mitted for testing by a Government laboratory in accordance with the instructions of the procuring agency; if a particular method for determining suitability is preferred, it shall be as specified (see 6.2 and 6.3). Unless otherwise specified, such tests shall be made only once on any one brand of material.

TABLE I.—Mechanical and physical property requirements for all grades of molded specimens

Property	Value required					Paragraph reference to applicable test
	Type I			Type II	Type III	
	Class 1	Class 2	Class 3			
Tensile strength, p.s.i., min.	7,000	7,000	7,000	5,500	5,000	4.6.2
Modulus of elasticity in tension, p.s.i., min.	400,000	400,000	370,000	300,000	300,000	4.6.2
Flexural strength, p.s.i., min.	11,000	11,000	11,000	8,500	8,500	4.6.3
Izod impact strength, ft-lb/in of notch, min.	0.65	0.65	0.50	5.0	1.5	4.6.4
Deflection temperature under load at 264 p.s.i., deg. C., min.	70.0	70.0	66.0	66.0	66.0	4.6.5
Flammability	SE*	SE*	SE*	SE*	SE*	4.6.6
Chemical resistance:						4.6.7
93 percent sulfuric acid						
14 days flotation at 55 deg. \pm 2 deg. C.						
Change in weight						
Increase, percent max.	5.0**	NA	5.0**	NA	NA	
Decrease, percent max.	0.1**	NA	0.1**	NA	NA	
Change in flexural strength						
Increase, percent max.	5.0**	NA	5.0**	NA	NA	
Decrease, percent max.	25.0**	NA	25.0**	NA	NA	
80 percent sulfuric acid						
30 day immersion at 60 deg. \pm 2 deg. C.						
Change in weight						
Increase, percent max.	NA	5.0	NA	15.0	NA	
Decrease, percent max.	NA	5.0	NA	0.1	NA	
Change in flexural strength						
Increase, percent max.	NA	15.0	NA	25.0	NA	
Decrease, percent max.	NA	15.0	NA	25.0	NA	
Oil immersion resistance						4.6.8
30 days at 23 deg. \pm 1°C.						
Change in weight						
Increase, percent max.	1.0	1.0	1.0	10.0	10.0	
Decrease, percent max.	1.0	1.0	1.0	1.0	1.0	

*SE—Self extinguishing or non-burning.

**—Specimens washed in running water and dried by an air blast or other mechanical means shall show no sweating within 2 hours after removing from the acid bath.

NA—Not applicable.

L-M-530b**TABLE II.—Additional physical property requirements for grade E (electrical quality) molded specimens**

Property	Value required	Paragraph reference to applicable test
Volume resistivity, megohm-centimeters (meg.-cm.), min.	1×10^6	4.6.9
Dielectric strength, flatwise, volts per mil, minimum: Short time test	400	4.6.10
Dielectric constant, maximum: At 1 kilocycle Normal conditioning ¹	3.90	4.6.11
At 1 megacycle Normal conditioning ¹	3.30	
After immersion ²	3.40	
At 30 megacycles Normal conditioning ¹	3.10	
Dissipation factor, maximum ³ At 1 kilocycle Normal conditioning ¹	0.017	
At 1 megacycle Normal conditioning ¹	0.018	
After immersion ²	0.022	
At 30 megacycles Normal conditioning ¹	0.015	

¹ Normal conditioning shall be for 96 hours min. at 23 deg. \pm 1.1 deg. C. (73.4 deg. \pm 2 deg. F.) and 50 \pm 4 percent relative humidity.

² After immersion means that the specimen shall be conditioned for 96 hours min. at 23 deg. \pm 1.1 deg. C. (73.4 deg. \pm 2 deg. F.), and 50 \pm 4 percent relative humidity plus immersion for 48 hours in distilled water at 50 deg. \pm 1 deg. C. (122 deg. \pm 1.8 deg. F.) plus immersion for $\frac{1}{2}$ hour in distilled water at 23 deg. \pm 1.1 deg. C. (73.4 deg. \pm 2 deg. F.). Wipe specimens first with a damp cloth then with a dry cloth. Test at 23 deg. \pm 1.1 deg. C. (73.4 deg. \pm 2 deg. F.) and 50 \pm 4 percent relative humidity. The test shall be started within 2 minutes after removing specimens from conditioning bath.

³ Determinations made concurrently with those of dielectric constant, using the same specimens.

Unless otherwise specified, such tests shall be made only once on any one brand of material.

3.5 Nontoxicity. When grade NT is specified, the material furnished shall be made only of a compound certified for nontoxicity by the supplier in accordance with the procedure specified in 4.7.

3.6 Color. The color of the material, and the method of determining compliance, including tolerances, shall be as specified by the procuring agency (see 6.2). Each manufacturer's color number shall be subjected to and shall pass the periodic lot-check tests.

3.7 Workmanship and uniformity. The material shall be free of contamination and shall be uniform in color and form.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in contract or order. 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.

4.2 Lot. A lot shall consist of all material of the same type, class, grade, and color, produced under like conditions in one unchanged process by one manufacturer, and presented for acceptance at one time.

4.3 Classification of tests. All tests shall be performed at the manufacturer's plant and shall be classified as follows:

- (a) Lot acceptance tests (see 4.3.1).
- (b) Periodic lot-check test (see 4.3.2).

4.3.1 Lot acceptance tests. Lot acceptance tests shall be made on each lot of material and shall be the basis for acceptance or rejection of the lot. The lot acceptance tests shall consist of the tests shown in table III applicable to the specified grade.

4.3.2 Periodic lot-check tests. Periodic lot-check tests shall be made on the first lot of each different type, class, grade, and color furnished by each supplier under this specification, and on every twentieth lot, or once every two hours, whichever is the more frequent, of the same type,

class, grade and color. The periodic lot-check tests shall consist of all the tests shown in 4.6 applicable to the specified grade and type.

TABLE III.—Lot acceptance tests

Test or property	Paragraph reference to applicable test
Applicable to all grades	
Tensile strength	4.6.2
Modulus of elasticity	4.6.2
Izod impact strength	4.6.4
Deflection temperature under load	4.6.5
Flammability	4.6.6
Additional tests applicable to grade E specimens	
Dielectric strength	4.6.10
Dielectric constant, normal conditioning ¹ .. at 1 kilocycle or at 1 megacycle	4.6.11
Dissipation factor normal conditioning ¹ ... at 1 kilocycle or at 1 megacycle	

¹ These tests are made simultaneously on the same specimens; the procuring agency shall specify which test frequency shall be used.

4.4 Sampling.

4.4.1 Sampling for examination of filled containers. A random sample of filled containers

shall be selected from each lot in accordance with Military Standard MIL-STD-105 inspection level I and the acceptable quality level (AQL) specified in table IV, to verify compliance with all stipulations of this specification regarding closure, marking and other requirements not involving tests (see 3.7, 5.2 and 5.3).

4.4.2 Sampling for tests. Samples for testing shall be selected at random from each lot. A composite sample, obtained from approximately equal amounts of materials from the approximate centers of five containers, shall be used for preparing the required number of molded specimens and, when specified, for making the required tests on the powder. If less than five containers are purchased, the composite sample shall be prepared from all containers in the manner specified for five. When a requirement for material form (see 3.3) is specified by the procuring activity, and visual uniformity of this property is questionable, separate non-composited samples shall be selected from material which appears to differ. Also, separate samples shall be selected when uniformity of color is questionable.

4.5 Examination.

4.5.1 Visual. Sample units shall be examined for the defects and at the acceptable quality levels shown in table IV.

TABLE IV.—Examination procedures and standards¹

Material	AQL percent	Classification of defect	Defect	Method of inspection
Material (see 3.3, 3.6 and 3.7)	2.50	Minor 201 Minor 202 Minor 203	Nonuniform material form ² Nonuniform color ² Contaminated material	Visual Visual Visual
In open container ³ (see 4.5.2 and 5.1)	1.00	Minor 204	Improper liner or no liner in fiber and drum	Visual
Closed container ³ (see 4.5.2, 5.1 and 5.2)	1.00	Major 101 Major 102 Major 103	Gross weight, max. Marking misleading or unidentifiable Container improperly closed	Approved scale ⁴ Visual Visual

¹ Unless otherwise specified by the procuring activity, Standard MIL-STD-105 shall be used as a basis.

² Nonuniformity of form and color shall be determined by visual comparison with standards. If standards are not available, a portion shall be selected at random from the lot and serve as a standard. If nonuniformity is questionable, testing shall be carried out in accordance with 4.4.2, 3.3 or 3.6, as applicable.

³ Applicable only for procurement by the Government.

⁴ All scales and other measuring tools shall be furnished by the contractor and approved by the Government.

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4.5.2 Packing and marking. Examination shall be for the defects and at the acceptable quality levels shown in table IV.

4.6 Test procedures.**4.6.1 Preparation of specimens.**

4.6.1.1 Number of specimens. The number and type of specimens shall be as specified in the applicable test procedure.

4.6.1.2 Molding. The specimens shall be compression molded either directly from the molding compound or from sheet approximately 0.075 inch thick made from the material by hot milling on 2-roll rubber mill or equivalent. (A molding temperature of 175 to 185 deg. C. (347 to 365 deg. F.) will usually be satisfactory.) When the sheet method is used, the laminations may be either die cut to size, stacked, and laminated in a conforming mold, or the sheets may be laminated first and then die cut or machined to the proper contour.

4.6.1.3 Conditioning. The test specimens for deflection temperature under load shall be conditioned in accordance with the general requirements of Federal Specification L-P-406 or Procedure B of ASTM Method D618, except that the minimum conditioning time shall be 24 hours. All other molded test specimens shall be conditioned in accordance with Method A of ASTM Method D618, except that the minimum conditioning time shall be 24 hours.

4.6.1.4 Test conditions. Unless otherwise specified, all tests shall be conducted at $23 \pm 1^\circ\text{C}$. ($73.4^\circ \pm 1.8^\circ\text{F}$.) and 50 ± 2 percent relative humidity. The average values shall be reported.

4.6.2 Tensile strength and modulus of elasticity in tension. Five specimens $\frac{1}{8}$ inch thick, shall be tested in accordance with method 1011 of Federal Specification L-P-406 or ASTM Method D638-58T.

4.6.3 Flexural strength. A minimum of five specimens $\frac{1}{8}$ by $\frac{1}{2}$ by 4 inches for each condition (normal conditioning and 93% to 80% acid

conditioning as applicable) shall be tested in accordance with method 1031 of Federal Specification L-P-406 modified as stated herein, or method B of ASTM D 790-58T, using a span of two inches and a crosshead speed of 0.50 inch per minute.

4.6.4 Izod impact strength. Five specimens, each with a thickness between $\frac{1}{4}$ inch and $\frac{1}{2}$ inch shall be tested in accordance with method 1071 of Federal Specification L-P-406 or method A of ASTM D 256-56. If it is found that specimens in the lower part of the $\frac{1}{4}$ to $\frac{1}{2}$ inch thickness range produce incomplete breaks while those in the upper part of this range show complete breaks, the values obtained with the thicker specimens shall be reported.

4.6.5 Deflection temperature under load. A minimum of two specimens $\frac{1}{4}$ inch thick shall be conditioned in accordance with method 2011 of Federal Specification L-P-406 or method B of ASTM Method D 648-56 except that the minimum conditioning time shall be 24 hours; the two specimens shall then be tested at a fiber stress of 264 psi in accordance with ASTM Method D648-56.

4.6.6 Flammability. One specimen $\frac{1}{8}$ by $\frac{1}{2}$ by 5 inches shall be tested in accordance with method 2021 of Federal Specification L-P-406 or ASTM Method D 635-56T. If this test shows that the specimen is self extinguishing or non-burning, the lot shall be considered as having passed this test. If the test result is borderline the number of specimens specified in the test method shall be tested and the result of all tests, as interpreted in accordance with the cited method, shall be used as the criterion of the ability of the lot to pass this test.

4.6.7 Chemical resistance. Test specimens 1 by 3 by $\frac{1}{8}$ inch shall be tested in accordance with Method 7011 of Federal Specification L-P-406 or ASTM Method D543-60T using the following concentrations of acids:

Percent H_2SO_4 , nominal	80	93
Percent H_2SO_4 , actual	78-82	92.98-93.41
Specific gravity at 60°F .	1.705-1.760	1.8364-1.8344
Degrees Baumé ($^\circ\text{Bé}$) at 60°F .	60.0-62.5	65.96-66.94

Determine the concentration of sulfuric acid by one of the following methods:

(a) Titrate with standard sodium hydroxide, taking care either to eliminate all carbon dioxide or to use an indicator that is not sensitive to carbon dioxide. (See Scott, *Technical Methods of Analysis, or other standard reference*.) Standardize the sodium hydroxide, if necessary, by titrating it against either (1) acid potassium tartrate, or (2) succinic acid, or (3) constant boiling hydrochloric acid or (4) hydrochloric acid standardized by precipitation as silver chloride.

(b) Measure the specific gravity, or degrees Baumé, at 60°F.

Use a hydrometer having the sensitivity and accuracy necessary for the precision required by the above values.

Adjust the concentration of the sulfuric acid, if necessary, by mixing sulfuric acids of higher and lower concentrations. For the 80 percent sulfuric acid test, immerse the samples completely in the acid, using glass rods or acid resistant wire as sinkers.

For the 93 percent sulfuric acid test, float the specimen vertically in the acid using a test tube of appropriate size. For both concentrations of acid, stopper the tubes loosely to prevent evaporation or condensation that might change the concentration of the acid during the test.

4.6.8 Oil immersion resistance. Three specimens of the dimensions specified in ASTM method D 471-57T shall be tested in accordance with this method. The test shall be conducted in ASTM Oil No. 3.

4.6.9 Volume resistivity. Five specimens shall be tested in accordance with ASTM method D 257-58.

4.6.10 Dielectric strength. Five specimens shall be tested under oil at a frequency not exceeding 60 cycles per second in accordance with method 4031 of Federal Specification L-P-406 or ASTM method D 149-55T.

4.6.11 Dielectric constant and dissipation factor. Five specimens shall be tested in accordance with ASTM method D 150-54T. The dissipation factor of the material is the tangent of the dielectric loss angle.

ance with ASTM method D 150-54T. The dissipation factor of the material is the tangent of the dielectric loss angle.

4.7 Certification. Certification for nontoxicity shall be conducted in accordance with the intended use of the material as follows:

(a) For use in potable water systems, the material shall be properly selected to meet conditions of service and, in addition, be certified by the National Sanitation Foundation Testing Laboratory or other impartial agency using an equivalent program of control.

(b) For use as plastic food wrappers and containers, the material shall be approved by the Food and Drug Administration.

(c) For use as plastic materials in clothing and equipment, such that contact with the skin under normal usage or intimate and frequent handling or other medical implications are present, the material shall be approved by the joint Military Medical Agency.

4.8 Rejection.

4.8.1 Examination. Any nonconforming container in each sample when examined in accordance with 4.5 shall be rejected and if the number of nonconforming containers exceeds the acceptance number specified for that sample, the entire lot shall be rejected.

4.8.2 Tests. A lot shall be rejected for failure to comply with any of the test requirements when tested in accordance with 4.6.

5. PREPARATION FOR DELIVERY

5.1 Application. The requirements of section 5 apply only to purchase by or direct shipment to the Government. For civil agency procurement, the definitions and applications of the levels of packaging and packing shall be in accordance with Federal Standard No. 102.

5.2 Packing.

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5.2.1 Level A. Unless otherwise specified, the material shall be packed in one of the following types of containers:

- (a.) Plywood drums conforming to Military Specification JAN-P-112, type A or B.
- (b.) Fiber drums conforming to Federal Specification PPP-D-723, type II, grade A, or type III, grade A in quantities of 200 pounds maximum.
- (c.) Metal drums conforming to Federal Specification PPP-D-729, type III or type IV, in quantity of 400 pounds maximum.

In so far as practical, containers shall be of uniform shape and size, with minimum cube and tare consistent with the protection required. Containers shall contain identical quantities and shall be closed and strapped in accordance with applicable container specification.

5.2.2 Level B. Unless otherwise specified, the material shall be in one of the following types of containers:

- (a.) Fiber drums conforming to Federal Specification PPP-D-723, type I, grade A in quantities of 200 pounds maximum.
- (b.) Metal drums conforming to Federal Specification PPP-D-729, type III or type IV, in quantities of 400 pounds maximum.

In so far as practical, containers shall be of uniform shape and size with minimum cube and tare consistent with the protection required. Containers shall contain identical quantities and shall be closed and strapped in accordance with applicable container specification.

5.2.3 Level C. Packing shall be in accordance with commercial practice adequate to ensure acceptance and delivery by the carrier for the mode of transportation employed. Containers shall comply with carrier rules and regulations applicable to the mode of transportation without assessment of penalty charges for improper packing.

5.2.4 Level D. Packing shall be in accordance with commercial export practice adequate to ensure acceptance and safe delivery by the carrier for the mode of transportation employed.

Containers shall comply with carrier rules and regulations applicable to the mode of transportation without assessment of penalty charges for improper packing.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking specified in the contract or order, shipping containers shall be marked in accordance with Federal Standard No. 123.

5.3.2 Military agencies. Containers shall be marked in accordance with Military Standard MIL-STD-129.

6. NOTES

6.1 Intended use. Polyvinyl chloride is used where a combination of chemical resistance, toughness, nonflammability and resistance to weathering is required. The various types, classes, and grades are used as follows:

Type I, class 1 is the most chemically resistant grade, but is also difficult to mold. It is used as piping for handling strong acids, as sheeting for ducting to handle corrosive fumes, or as moldings for handling liquid missile fuels (see 6.4).

Type I, class 2 is lower in cost and considerably easier to mold. It is used for piping, pipe fittings, pump parts, sheets, and moldings where maximum chemical resistance is not required.

Type I, class 3 is easier to mold than type I, class 1 and exhibits sufficiently good chemical resistance to be used for pipe fittings with type I, class 1 piping, and for other molded parts in corrosive service.

Type II is the grade with highest impact strength.

Type III is used where maximum mechanical properties and chemical resistance are not required. Materials meeting the requirements of type III are available in varieties which are easy to process, have special appearance features, such as transparency or color, and are capable of being made into vacuum formable sheets. These requirements may be specified on the purchase

order. Grade E is specified in any type of class to obtain superior electrical properties. Electrical grade E is ordinarily ordered in types I and II only because type III is essentially a low cost material with minimum properties.

Grade NT is specified in any type or class to obtain nontoxicity, primarily for piping and containers that are used for handling or storing potable water; see 6.4 for further details on use. This grade of material is produced without lead or any other potentially toxic stabilizers; tin stabilizers are usually used as a substitute.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type, class, and grade of material required (see 1.2 and 3.1).
- (c) Additional physical properties, if required, including test methods (see 3.3).
- (d) Suitability for use with explosives or chemicals, if required, and test method (see 3.4 and 6.3).
- (e) Nontoxicity, if required (see 3.5 and 4.7).
- (f) Color required, including test method and tolerance (see 3.6).
- (g) Testing frequency for lot acceptance tests of grade E material (see note in table III).
- (h) Level of packing required (see 5.2).
- (i) Additional marking, if required, (see 5.3).

6.3 Suitability for use with explosives and chemicals. Information concerning suitability of many plastics for use with various explosives and chemicals under various conditions is on file at Picatinny Arsenal, Dover, New Jersey. Procuring activities desiring information on this subject should first contact Picatinny Arsenal to determine whether the information is already available.

6.4 Supersession data. Table V lists the types, classes, and grades of this specification corresponding to those listed in superseded Federal Specification L-P-530a.

TABLE V.—Classifications in this document and corresponding classifications in superseded L-P-530a

Present classification	Former classification in L-P-530a
Type I, Class 2, Grade GU	Type I, Class 2, Grade A
Type II, Grade GU	Type I, Class 2, Grades B and C
Grade NT	Class 1
Grade E	Type II
Type I, Classes 1 and 3	None
Type III	None

The requirements of MPD-2161 are included herein.

Type I, class 1 material meets the requirements of Missile Purchase Description MPD-2161, Plastic, Polyvinyl Chloride, Nitric Acid Resistant, Molded Parts.

6.5 Transportation description. Transportation descriptions and minimum weights applicable to this commodity are:

Rail:

Moldings, plastic.

Carload minimum weight 20,000 pounds, subject to Rule 34, Uniform Freight Classification.

Motor:

Moldings, plastic.

Truckload minimum weight (W) 30.6 pounds, (W) subject to Rule 34, National Motor Freight Classification.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

MILITARY CUSTODIAN:

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Air Force—ARDC

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SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004
<u>INSTRUCTIONS</u>		
<p>This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).</p>		
SPECIFICATION		
ORGANIZATION (of submitter)		CITY AND STATE
CONTRACT NO.	QUANTITY OF ITEM PROCURED	DOLLAR AMOUNT \$
MATERIAL PROCURED UNDER A		
<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?		
A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE?		
<input type="checkbox"/> YES <input type="checkbox"/> NO IF "YES", IN WHAT WAY?		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are, additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity)		DATE