DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 173 and 178

[Docket No. HM-185, Notice No. 82-7]

Standard for Polyethylene Containers; Extension of Comment Period

AGENCY: Materials Transportation Bureau (MTB), Research and Special Programs Administration, DOT.

ACTION: Extension of time to file comments.

SUMMARY: On August 26, 1982, MTB published a notice of proposed rulemaking (Docket No. HM-185, Notice No. 82-7; 47 FR 37592) concerning a revision of standards in 49 CFR applicable to the construction and use of polyethylene containers used as packagings for hazardous materials. Subsequently, petitions have been received from two companies citing a need for additional time in which to evaluate and comment of the proposals in the notice and requesting a 90 day extension of time for filing comments. MTB believes that an extension is consistent with the public interest and, by this notice, is extending the comment period from October 25, 1982, to January 24, 1983.

DATE: Comments must be received on or before January 24, 1983.

ADDRESS: Submit comments to Docket Branch, Information Services Division, Materials Transportation Bureau, Room 8426, Department of Transportation, 400 7th Street, SW, Washington, D.C. 20590.

FOR FURTHER INFORMATION CONTACT: Edward T. Mazullo, Standards Division, Office of Hazardous Materials Regulation, Materials Transportation Bureau, Department of Transportation, 400 Seventh Street, SW., Washington, D.C. 20590, (202) 426-2075.

Issued in Washington, D.C. on October 20, 1982.

Alan I. Roberts,

Associate Director for Hazardous Materials Regulations, Material Transportation Bureau.

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DEPARTMENT OF TRANSPORTATION

Research and Special Programs Administration

49 CFR Parts 173 and 178

[Docket No. HM-185; Notice No. 82-7]

Standards for Polyethylene Containers

AGENCY: Materials Transportation Bureau (MTB), Research and Special Programs Administration, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: MTB is proposing a revision of standards for polyethylene containers used as packagings for hazardous materials. Specific proposals include the following:

1. A revision of Specification 34 for polyethylene drums in order to—

a. Authorize a maximum container capacity of 55 gallons instead of the existing 30 gallon limit;

b. Expand authorizations for use (in Part 173) to permit use of Specification 34 for certain materials which have been transported in Specification 34—type polyethylene drums under exemption.

c. Relax periodic design qualification test requirements; and

d. Increase emphasis on performance requirements as opposed to detailed specification requirements.

2. Deletion of Part 178 Appendix B and a revision of specifications for polyehtylene containers and liners (i.e., Specifications 2E, 2S, 2SL, 2T, 2TL, 2U, 34 and 35) in order to—

a. Eliminate detailed requirements pertaining to material characteristic specifications (e.g., melt index, density) for polyethylene resins used in manufacturing polyethylene containers; and

b. Clarify that each container manufactured in accordance with a specification must be capable of withstanding without failure the performance tests prescribed in that specification.

3. Permeation limits for hazardous materials packaged in polyethylene and test criteria for use in determining the compatibility of hazardous materials with polyethylene and for determining rates of permeation.

4. Restricted reuse provisions for polyethylene containers previously used for poisonous materials.

5. Deletion of obsolete provisions in § 173.23 (a) and (b).

DATE: Comments must be received by October 25, 1982. Additional time will be provided if requested.

ADDRESS: Comments should identify the docket and be addressed to the Dockets Branch, Materials Transportation Bureau, U.S. Department of Transportation, Washington, D.C. 20590. Five copies are requested. The Dockets Branch is located in Room 8426 of the Nassif Building, 400 Seventh Street SW., Washington, D.C. Public dockets may be reviewed between the hours 8:30 a.m. and 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Mario E. Gigliotti, Technical Division, (202–755–4906), or Edward T. Mazzullo, Standards Division (202–426–2075), Office of Hazardous Materials Regulation, Materials Transportation Bureau, Department of Transportation, 400 Seventh Street SW., Washington, D.C. 20590.

SUPPLEMENTARY INFORMATION: On June 21, 1979, MTB published a notice (44 FR 36211) in the **Federal Register** which announced a public meeting and solicited comments pertaining to the feasibility of establishing standards for polyethylene containers used as packagings for hazardous materials. A public meeting was held on July 24, 1979, and in response to substantial public interest a subsequent meeting was held on November 13, 1979 (announced in 44 FR 58767). Both meetings took place in Washington, D.C. These meetings were non-evidentiary and as such no transcripts of the proceedings were made. However, prepared statements of speakers and other written comments submitted in response to the notices are available for review in the docket file. Items discussed at the meetings included the following:

1. A presentation of the National Bureau of Standards' current views relative to stress cracking, permeation and compatibility of polyethylene packagings used for hazardous materials. Particular attention was focused on the development of methods by which these phenomena can be predicted without direct testing on a case by case basis or, alternatively, appropriate test criteria for determining compatibility of materials with polyethylene.

2. Reuse provisions for polyethylene packagings, particularly with regard to shipment of Poison B liquids and solids in polyethylene containers.

3. Use of polyethylene packagings for flammable liquids, with discussion of the tendency of polyethylene to pick up a static charge and associated risks.

4. Shipping experience of shippers using polyethylene containers for hazardous materials.

This notice of proposed rulemaking is based upon oral and written comments from the public in response to the two aforementioned notices, MTB's own rulemaking initiatives and four petitions for rulemaking submitted by representatives of the plastics industry. Subjects addressed in this notice are discussed in the following paragraphs.

I. Background

It is proposed to revise Specification 34 for polyethylene drums. Maximum authorized capacity, as specified in § 178.19–3, would be increased from 30 gallons to 55 gallons. A minimum container wall thickness of 0.125 inches would be required, with 0.090 inches thickness authorized in corners and undercuts. In § 178.19–7, a compression weight load of 2400 pounds would be prescribed for conduct of the static compression test. These changes are based on the terms of existing exemptions for 55 gallon polyethylene drums and on the merits of a petition for rulemaking submitted by the Society of the Plastics Industry (SPI).

Authorizations for use of 30 gallon specification polyethylene drums are currently in the Hazardous Materials Regulations (HMR) in §§ 173.245, 173.263, 173.264, 173.265, 173.266, 173.272, 173.276, 173.277 and 173.288. These sections would be revised to permit use of a 55 gallon drum. In addition, based on successful shipping experience under the terms of exemptions, authorizations for use of Specification 34 would be added to §§ 173.125, 173.247, 173.256, 173.257, 173.269, 173.271, 173.287, 173.348, 173.349, 173.357, 173.361 and 173.362a.

In § 178.19–7, it is proposed to increase the time interval between periodic retests from four months to one year, in order to reduce the burden imposed by frequent retests. Conduct of drop tests (both at ambient temperature

and at 0° Fahrenheit) would be modified to require drops (of four feet in height) onto both the side and bottom of drums, in addition to the current requirement for dropping drums diagonally onto the top chime, in order to be compatible to those requirements currently contained in polyethylene drum exemptions. Specification 34 would be editorially revised in its entirety for clarity. One change would substitute the words "polyethylene drum" where the specification currently references "polyethylene container" or "polyethylene container for use without overpack."

Another proposal would apply not only to Specification 34, but also to all other specification polyethylene containers. It involves elimination of specification requirements relative to the physical composition and characteristics of polyethylene resins used in the molding of containers and increased reliance on performance requirements as opposed to detailed design and construction requirements for achieving a high level of container integrity. In Appendix B to Part 178 and in the various specifications for polyethylene containers in Part 178, tables which specify properties (i.e., melt index, density, tensile strength, etc.) for polyethylene resins would be deleted as would the requirement in § 178.16-4 pertaining to retention of data related to melt index and density. This change would provide manufacturers flexibility in making innovative changes to their manufacturing processes without the need for their applying for relief from specified properties and is responsive to two petitions for rulemaking and MTB's own rulemaking initiatives.

It is essential that a high level of packaging integrity for polyethylene containers be maintained in the absence of specified resin properties. The performance requirements found in the individual specifications are indicative of the ability of a container to withstand the rigors of the transportation environment without release of its contents, barring abnormal abuse. Performance requirements would be emphasized by editorially revising each polyethylene container specification in Part 178 in order to clarify that each container manufactured under provisions of a specification must be capable of withstanding without failure the performance tests prescribed in that specification. Also, it would be required that polyethylene resins used to mold containers be "not previously used" so as to prohibit the use of polyethylene resins made from reprocessed containers which were previously used for the shipment of any material. This prohibition is not intended to prohibit reprocessing of either excess from the molding process or unused containers.

MTB has permitted the use on certain polyethylene drums under its exemptions program for a number of years. Authorizations for packaging specific hazardous materials in these drums have been limited to materials which have been tested for permeation and compatibility with the polyethylene packaging. This approach has been necessary because of difficulties in predicting permeability and other effects on polyethylene when exposed to different ladings. Ordinarily, after sufficient experience with a new packaging has been accumulated through the exemptions program, a packaging is considered for inclusion in the HMR as an authorized container. It is proposed to amend Specification 34 to accommodate polyethylene drums of 55 gallon capacity which are presently authorized by exemptions. For the purpose of revising the specification, MTB believes it is necessary to rely on a continuation of the approach which is used in the exemptions program, i.e., the polyethylene packaging should be examined in connection with each specific material proposed to be transported therein. Further, it is proposed that this approach be made applicable to the packaging of hazardous materials in any polyethylene packaging, in order to alleviate an existing deficiency in the HMR. Therefore, new test criteria are proposed for use in determining chemical compatibility and rates of permeation. A generalized requirement in § 173.24(c)(9) stipulates that a polyethylene packaging must be compatible with its lading. Section 173.24 would be amended to prescribe maximum permissible rates of permeation. Proposed rates are 0.5% for extremely toxic poisonous materials, defined as those materials having an oral toxicity of less than 20 mg/kg (LD_{50}, oral rat) or dermal toxicity of less than 80 mg/kg (LD_{50}, dermal rabbit) and a maximum of 2.0% for all other hazardous materials.

A method to be used in determining chemical compatibility and rates of permeation would be added as Appendix B of Part 173. The test method prescribes testing of the specific hazardous material in the polyethylene packaging in which shipment is intended. The package, as prepared for shipment, is stored at elevated temperatures of 130° F. for 90 days or 140° F. for 14 days (at the tester's option) and examined for evidence of chemical incompatibility and rate of permeation. The proposed method is based on requirements in exemptions for polyethylene containers. It should be noted that the proposal establishes a standard and does not impose a specific requirement to test. It would not be necessary to test each combination of hazardous material and polyethylene packaging. Many conbinations have already been tested under the exemptions program or have successful shipping histories. Untried combinations of materials and packagings would require testing only if there were no basis for making a reasonable determination as to compatibility and permeation rates in the absence of such testing.

Under the current reuse provisions of § 173.28, polyethylene containers which have been used for shipment of Poison B liquids and solids may be emptied and reused for the shipment of other materials, both hazardous and nonhazardous. MTB has been petitioned by SPI to limit the reuse of such containers to Poison B liquids and solids, i.e., such containers would remain in "dedicated service" as packagings for Poison B materials. The petition requests that a skull and crossbones symbol and the warning "Contains Poison, Limit Reuse for Poison Only" be required as a permanent marking on polyethylene containers used as outside packagings, or as a stencilled marking on outside packagings other than polyethylene which hold inside polyethylene containers, in those instances where Poison B materials are to be packaged. The petition addresses the concern that the poison hazard may remain in empty polyethylene containers, even after cleaning. MTB agrees with the need to address this concern, but is of the opinion that imposition of the economic burden which would be associated with permanent embossment of warnings on polyethylene containers is not justifiable. As an alternative, MTB proposes to amend § 173.28(d) to require that polyethylene containers once used as packagings for Poison B materials be limited to Poison B materials for reuse. If poison labels appear on such containers, the labels would be maintained in a legible condition until the containers are disposed of or destroyed. Permanent embossment of the skull and crossbones symbol or warning statements could be performed on a voluntary basis. It is believed that the MTB's proposal addresses the safety issue without imposing substantial costs on shippers or container manufacturers.

It is proposed to eliminate paragraphs (a) and (b) of § 173.23 from Part 173. Paragraph (a) permits continued use of Specification 5B, 6J and 37A metal drums manufactured prior to March 16, 1964, having inside Specification 2S, 2SL, 2T or 2TL polyethylene liners. Paragraph (b) permits use of certain polyethylene containers for use with an overpack manufactured prior to September 5, 1966, and marked ICC–34. It is believed that these containers are obsolete and, therefore, the provisions of § 173.23(a) and (b) are no longer needed. The remaining paragraph (c) would be redesignated paragraph (a).

MTB is aware that there are differences between changes proposed in this rulemaking for specification packagings and changes suggested in Docket HM–181; Advance Notice No. 82–3 (47 FR 16268) which envisions the deletion of specification packagings and adoption of international performance-oriented packaging standards. Commenters are reminded that this notice of proposed rulemaking is intended to authorize use of certain polyethylene packagings in a relatively short period of time whereas Docket HM–181 is an advance notice in which changes are set forth for demonstration purposes and, even if promulgated, would not become final in the near future.

II. Request for Comments

MTB Invites comments on all aspects of the proposed rule and the issues discussed in this preamble. Of Particular interest are comments addressed to the following issues.

1. MTB is proposing to add authorizations for use of Specification 34 based on shipping experience acquired under the exemptions program for the following materials: alcohol, n.o.s.; thionyl chloride; compound, cleaning, liquid (corrosive material); electrolyte (acid) and alkaline battery fluid; perchloric acid; phosphorous oxychloride; sulfuric acid of greater than 95 percent to not over 100.5 percent concentration; chromic acid solution; arsenic acid; carbolic acid, liquid; chloropicrin and chloropicrin mixtures; aldrin mixtures; and, dinitrophenol solutions. MTB requests comments concerning other materials or classes of material which may be suitable for shipment in Specification 34 based on established shipping experience, evidence of chemical compatibility, or their similarity to the aforementioned materials or to those materials for which Specification 34 is currently authorized.

2. MTB estimates that the recordkeeping requirement of § 178.19–7(d) will impose an annual burden of 4 hours on each of approximately 25 manufacturers, for a total annual burden of 100 hours. Comments are requested as to the validity of this estimate.

3. It is proposed to delete specifications for polyethylene resins used to mold containers. MTB believes that packaging integrity would be maintained by reliance on performance requirements and proposed requirements pertaining to permeation and chemical compatibility. Comments are requested concerning the need, if any, from the standpoint of safety for specifying the characteristics of polyethylene resins.

4. MTB believes that requirements proposed in this notice for determining chemical compatibility and rates of permeation (proposed § 173.24(d) and Appendix B to Part 173) for hazardous materials packaged in polyethylene containers, will correct an existing deficiency in the HMR and are necessary in order to achieve a high level of safety with regard to the transportation of hazardous materials in polyethylene packagings. If promulgated, the new requirements would have an impact on both shippers of hazardous materials and polyethylene container manufacturers, some of whom are small businesses. It is believed the regulation would not have a significant economic impact on a substantial number of small businesses under the criteria of the Regulatory Flexibility Act. MTB requests comments concerning estimates of degree of impact on small businesses, in terms of economic cost and numbers and types of businesses affected, proposals for practicable alternatives to supplement or replace the test method proposed as new Appendix B to Part 173 and estimates regarding the economic costs (or savings) attributable to such alternatives.

5. It is proposed (in proposed § 173.28(d)) to require "dedicated service" for polyethylene containers used to package Poison B materials. The proposal would impose a general requirement that polyethylene containers, once used to package Poison B materials, be reused only for poison B materials, be used only for Poison B materials and a specific requirement that Poison B labels remain on such containers, when so required. The proposal is based on the belief that residue remaining in such containers after initial use poses a hazard both to persons handling, cleaning or refilling the used, empty containers and, in subsequent use, to persons who come into contact with supposedly nonpoisonous materials which become contaminated with poisonous residues. MTB requests comments on practicable alternatives to its proposal, to include estimates of associated costs and benefits.

6. It is proposed to delete paragraphs (a) and (b) of § 173.23 because it is believed that the containers authorized therein are obsolete. The metal drums authorized in §173.23(a) are all at least 18 years old and the polyethylene drums authorized in § 173.23(b) are all at least 15 years old. If any shippers are still using these containers, comments are requested from them concerning numbers and types of containers used, shipping experience and period of time necessary ot deplete any existing stocks.

7. Exemptions potentially affected by this rulemaking are as follows: DOT–E 6637, E 6700, E 6726, E 6800, E 6883, E 6986, E 7035, E 7072, E 7082, E 7220, E 7502, E 7788, E 7888, E 7933, E 7940, E 8051. Comments and suggestions for eliminating any, or all, of these exemptions, or portions thereof, are requested.

III. Section-by-section summary of proposed changes.

Section 173.23. Paragraphs (a) and (b) would be deleted to eliminate obsolete provisions, paragraph (c) would be redesignated paragraph (a).

Section 173.24. Paragraph (c)(9) would be deleted, paragraph (d) would be redesignated paragraph (e) and a new paragraph (d) would be added specifying rates of permeation and chemical compatibility requirements.

Section 173.28. The section title would be revised for clarity and paragraph (d) would be revised to limit reuse of polyethylene containers used to package Poison B materials.

Section 173.125. Authorization for use of Specification 34 would be added as paragraph (a)(7).

Section 173.245. Paragraph (a)(26) would be revised to remove the 30 gallon limitation for Specification 34.

Section 173.247. Authorization for use of Specification 34, for thionly chloride only, would be added as paragraph (a)(20).

Section 173.256. Authorization for use of Specification 34 would be added as paragraph (a)(8).

Section 173.257. Authorization for use of Specification 34 would be added as paragraph (a)(13).

Section 173.263. Paragraph (a)(28) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.264. Paragraph (a)(18) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.265. Paragraph (d)(6) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.266. Paragraph (b)(8) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.269. Authorization for use of Specification 34 would be added as paragraph (a)(7).

Section 173.271. Authorization for use of Specification 34 would be added as paragraph (s)(20).

Section 173.272. Paragraph (g) would be revised to authorize use of Specification 34 for sulfuric acid in concentrations of 95 percent to 100.5 percent and paragraph (i)(9) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.276. Paragraph (a)(10) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.277. Paragraph (a)(6) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.287. Authorization for use of Specification 34 would be added as paragraph (b)(9).

Section 173.288. Paragraph (e) would be revised to remove the 30 gallon limit for Specification 34.

Section 173.348. Authorization for use of Specification 34 would be added as paragraph (a)(5).

Section 173.349. Authorization for use of Specification 34 would be added as paragraph (a)(4).

Section 173.357. Authorization for use of Specification 34 would be added as paragraph (a)(4).

Section 173.361. Authorization for use of Specification 34 would be added as paragraph (a)(4).

Section 173.362a. Authorization for use of Specification 34 would be added as paragraph (a)(3).

Appendix B to Part 173. A test method for determining chemical compatibility and rates of permeation for hazardous materials in polyethylene containers would be added as Appendix B.

Section 178.16. In § 178.16–1, paragraph (c)(1) would be added to emphasize performance requirements and, in § 178.16–4, paragraph (a) would be revised to delete specifications for polyethylene resins and requirements for retaining data concerning melt index and density.

Section 178.19. The section would be revised in its entirety in order to clarify its language, increase authorized capacity to 55 gallons, delete specifications for polyethylene resins, revise test procedures and emphasize performance requirements.

Section 178.21. Paragraph (b) of § 178.21–1 would be added to emphasize performance requirements; paragraph (a) of § 178.21–3 would be revised to add a requirement that polyethylene resin may not have been used previously and Note 1 which follows this paragraph would be deleted to remove specifications for polyethylene resins.

Section 178.24. The specification title and the title and text of § 178.24–1 would be revised for clarity with a performance requirement added as § 178.24–1(c); a requirement that polyethylene resin may not have been used previously would be added and specifications for polyethylene resins would be deleted in § 178.24–2(a).

Section 178.24a. In § 178.24a–3, paragraph (c) would be deleted and paragraph (a) would be revised to add a requirement that polyethylene resin not be previously used and to delete specifications for polyethylene resins.

Section 178.27. In § 178.27–1, Note 1 would be deleted to remove specifications for polyethylene resins, paragraph (a) would be revised to add a requirement that polyethylene resin may not have been used previously and paragraph (b) would be added to emphasize performance requirements.

Section 178.35. The section title and § 178.35–1 would be revised for clarity; emphasis on performance requirements would be added as § 178.35–1(c); and in § 178.35–2, specifications for polyethylene resins would be deleted and a requirement that polyethylene resin may not have been used previously would be added.

Section 178.35a. The section title and § 178.35a–1 would be revised to delete specifications for polyethylene resins, require that resins may not have been used previously and emphasize performance requirements.

Appendix B to Part 178. Appendix B, entitled "Specifications for Plastics," would be deleted in its entirety.

List of Subjects

49 CFR Part 173

Hazardous materials transportation, Packaging and containers.

49 CFR Part 178

Hazardous materials transportation, Shipping container specifications.

In consideration of the foreging, 49 CFR Parts 173 and 178 would be amended as follows:

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

§ 173.23 [Amended]

1. In § 173.23, paragraphs (a) and (b) would be removed and paragraph (c) would be redesignated paragraph (a).

2. In § 173.24, paragraph (c)(9) would be deleted, paragraph (d) would be redesignated paragraph (e), and a new paragraph (d) would be added as follows:

§ 173.24 Standard requirements for all packagings.

* * * * *

(d) Polyethylene used in packagings must be of a type compatible with the lading and may not be permeable to an extent that a hazardous condition could be caused during transportation or handling. The maximum rate of permeation may not exceed 2.0%, except for a hazardous material that has an oral toxicity of less than 20 mg/kg (LD50, rat) or dermal toxicity of less than 80 mg/kg (LD50, rabbit) in which case the maximum permeation rate may not exceed 0.5%. The procedure specified in Appendix B of this Part (entitled "Methods of Testing Chemical Compatibility and Rate of Permeation in Polyethylene Containers") shall be followed to determine compliance with this paragraph. Historical evidence of compatibility or alternative procedures may be used if approved by the Associate Director for HMR.

* * * * *

3. In § 173.28, the title and paragraph (d) would be revised to read as follows:

§ 173.28 Reuse of packagings and containers.

* * * * *

(d) Except for polyethylene containers previously used for the shipment of Poison B liquids or solids, containers previously used for the shipment of hazardous materials must have the old markings, including name of contents, addresses and labels, if any, thoroughly removed or obliterated before being used for the shipment of other articles. Polyethylene containers previously used for the shipment of Poison B liquids or solids may not be reused for the shipment of other articles and Poison labels appearing on these containers must be maintained in a legible condition until the containers are disposed of or destroyed.

* * * * *

4. In § 173.125, paragraph (a)(7) would be added to read as follows:

§ 173.125 Alcohol, n.o.s. (flammable liquid).

(a) * * *

(7) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

5. In § 173.245, paragraph (a)(26) would be revised to read as follows:

§ 173.245 Corrosive liquids not specifically provided for.

(a) * * *

(26) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

6. In § 173.247, paragraph (a)(20) would be added to read as follows:

§ 173.247 Acetyl bromide; acetyl chloride; acetyl iodide; antimony pentachloride; benzoyl chloride; boron trifluoride acetic acid complex; chromyl chloride; dichloroacetyl chloride; diphenylmethyl bromide solutions; pyrosulfuryl chloride; silicon chloride; sulfur chloride (mono and di); sulfuryl chloride, thionyl chloride; tin tetrachloride (anhydrous); titanium tetrachloride; trimethyl acetyl chloride.

(a) * * *

(20) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized for thionyl chloride only.

* * * * *

7. In § 173.256, paragraph (a)(8) would be added to read as follows:

§ 173.256 Compounds, cleaning, liquid.

(a) * * *

(8) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

8. In § 173.257, paragraph (a)(13) would be added to read as follows:

§ 173.257 Electrolyte (acid) and alkaline corrosive battery fluid.

(a) * * *

(13) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

9. In § 173.263, paragraph (a)(28) would be amended to read as follows:

§ 173.263 Hydrochloric (muriatic) acid; hydrochloric (muriatic) acid mixtures; hydrochloric (muriatic) acid solution, inhibited; sodium chlorite solution (not exceeding 42 percent sodium chlorite); and cleaning compounds, liquids, containing hydrochloric (muriatic) acid.

(a) * * *

(28) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

10. In § 173.264, paragraph (a)(18) would be revised to read as follows:

§ 173.264 Hydrofluoric acid; white acid.

(a) * * *

(18) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized only for hydrofluoric acid not over 52% strength.

* * * * *

11. In § 173.265, paragraph (d)(6) would be revised to read as follows:

§ 173.265 Hydrofluorosilicic acid.

(a) * * *

(6) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

12. In § 173.266, paragraph (b)(8) would be revised to read as follows:

§ 173.266 Hydrogen peroxide solution in water.

(b) * * *

(8) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Each drum must have a vented closure to prevent accumulation of internal pressure and the head with the closure must be marked "KEEP THIS END UP."

* * * * *

13. In § 173.269, paragraph (a)(7) would be added to read as follows:

§ 173.269 Perchloric acid.

(a) * * *

(7) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized for perchloric acid not exceeding 50 percent strength only.

* * * * *

14. In § 173.271, paragraph (a)(20) would be added to read as follows:

§ 173.271 Phosphrous oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.

(a) * * *

(2) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized for phosphorous oxychloride only.

* * * * *

15. In § 173.272, paragraphs (g) and (i)(9) would be revised to read as follows:

§ 173.272 Sulfuric acid.

* * * * *

(g) *Sulfuric acid concentration of greater than 95 percent to not over 100.5 percent:* Authorized packaging is described in paragraphs (i)(1)–(4), (6), (9) and (14)–(22) of this section.

* * * * *

(i) * * *

(9) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

16. In § 173.276, paragraph (a)(10) would be revised to read as follows:

§ 173.276 Anhydrous hydrazine and hydrazine solution.

(a) * * *

(10) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized for hydrazine solution only.

* * * * *

17. In § 173.277, paragraph (a)(6) would be revised to read as follows:

§ 173.277 Hyochlorite solutions.

(a) * * *

(6) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum. Authorized for not over 16 percent sodium hypochlorite solution only.

* * * * *

18. In § 173.287, paragraph (b)(9) would be added to read as follows:

§ 173.287 Chromic acid solution.

(b) * * *

(9) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

19. In § 173.288, paragraph (e) would be revised to read as follows:

§ 173.288 Chloroformates.

* * * * *

(e) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

20. In § 173.348, paragraph (a)(5) would be added to read as follows:

§ 173.348 Arsenic acid.

(a) * * *

(5) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

21. In § 173.349, paragraph (a)(4) would be added to read as follows:

§ 173.349 Carbolic acid (phenol) liquid.

(a) * * *

(4) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

22. In § 173.357, paragraph (a)(4) would be added to read as follows:

§ 173.357 Chloropicrin and chloropicrin mixtures containing no compressed gas or Poison A liquid.

(a) * * *

(4) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

23. In § 173.361, paragraph (a)(4) would be added to read as follows:

§ 173.361 Aldrin mixtures, liquid, with more than 60 percent aldrin.

(a) * * *

(4) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

24. In § 173.362a, paragraph (a)(3) would be added to read as follows:

§ 173.362a Dinitrophenol solutions.

(a) * * *

(3) Specification 34 (§ 178.19 of this subchapter). Polyethylene drum.

* * * * *

25. Appendix B to Part 173 would be added to read as follows:

Appendix B—Methods of Testing Chemical Compatibility and Rate of Permeation in Polyethylene Containers

1. Compatibility and permeation rate are determined by subjecting the polyethylene container, filled to rated capacity with the specific hazardous material, to a time-at-temperature test of 130°F for 90 days or 140°F. for 14 days.

2. The weight of the filled container is determined before and after exposure to the elevated temperature and then the permeation rate from product loss is determined.

3. If storage at elevated temperature of a full-size polyethylene container poses a safety hazard, the test may be conducted using a smaller container molded by the same process and made of identical resin. Typical characteristics which must be maintained in the fabrication of a smaller container are: method of molding (e.g., blow, rotational), identical pigments, additives and processing temperatures.

4. If the container shows evidence of stress cracking or crazing, oxidation, embriittlement, vapor pressure build-up, collapse of walls or seepage, the container is considered to have failed the compatibility requirement.

5. If the permeation rate as determined by loss of weight exceeds 0.5% for any hazardous material that has an oral toxicity of less than 20 mg/kg (LD50, rat) or dermal toxicity of less than 80 mg/kg (LD50, rabbit), or 2.0% for all other hazardous materials, the container is considered to have failed the permeation requirement.

6. After storage at elevated temperature, the container is drained, rinsed, filled to rated capacity and dropped from a height of 4 feet onto solid concrete. If there is leakage or rupture, the container is considered to have failed the compatibility requirement.

PART 178—SHIPPING CONTAINER SPECIFICATIONS

26. In § 178.16, paragraph (c) of § 178.16–1 would be added and paragraph (a) of § 178.16–4 would be revised, as follows:

§ 178.16–1 Compliance.

* * * * *

(c) Each drum shall be capable of withstanding the performance tests prescribed in §§ 178.16–13 and 178.16–16 without failure.

§ 178.16–4 Material.

(a) Drums shall be made of an injection molding grade of high density polyethylene resin which has been used previously.

* * * * *

27. § 178.19 would be revised to read as follows:

§ 178.19 Specification 34; reusable molded polyethylene drum for use without overpack. Removable head not authorized.

§ 178.19–1 Compliance.

(a) Required in all details.

(b) Each drum shall be capable of withstanding the performance tests prescribed in § 178.19–7 without failure.

§ 178.19–2 Material.

(a) Drums shall be made of a polyethylene resin which has not been used previously.

(b) Ultraviolet light protection shall be provided by impregnation of polyethylene with carbon black or other equally efficient pigments or inhibitors. These additives shall be compatible with lading and shall retain their effectiveness for the life of the drum.

(c) Other materials may be added provided they do not adversely affect the structural integrity of the drum.

§ 178.19–3 Construction and capacity.

(a) Drums must be constructed in accordance with the following table:

Gallons [1]	Inches [2]
2½ through 6½	0.045
15	0.075
55	[3]0.125

[1]Marked (rated) capacity not over (gallons).
[2]Minimum thickness (inches) measured on any point of container.
[3]A minimum thickness of 0.090 inch is authorized in corners and undercuts.

(b) Minimum actual capacity shall not be less than rated capacity plus 4 percent. Maximum actual capacity shall not be greater than rated capacity plus 15 percent for drums up to 15 gallons and shall not be greater than rated capacity plus 10 percent for drums 15 gallons and over.

§ 178.19–4 Closure.

(a) Openings may not exceed 2.7 inches in diameter.

(b) Closures shall be of material compatible with the lading and adequate to prevent leakage under tests prescribed in § 178.19–7 and under conditions normally incident to transportation.

(c) Vented closures where specified in Part 173 of this subchapter are authorized.

§ 178.19–5 Defective drums.

(a) Drums with repaired bodies are not authorized.

§ 178.19–6 Marking.

(a) Each drum shall be permanently marked by embossment in letters and figures at least ½ inch in size as follows:

(1) DOT–34**; stars to be replaced by the rated capacity of the drum (for example, DOT–34–5).

(2) Month and year of manufacture. For example, DOT–34–5–6/80 to indicate a drum of 5 gallons capacity made in June 1980.

(3) Name or symbol of person making the marks specified in paragraphs (a)(1) and (a)(2) of this section and located just above or below those marks. Symbol, if used, shall be registered with the Associate Director for HMR.

§ 178.19–7 Tests.

(a) Conduct of texts. Samples of each drum size and design, selected at random, filled and prepared as specified and closed as for use, shall withstand the following tests without failure. No single drum shall be expected to withstand more than one test or drop.

(1) *Drop test at ambient temperature.* At least three drums, filled to 98% actual capacity with water, shall be dropped from a height of four feet onto solid concrete under the following conditions of orientation:

(i) One drum dropped flat on bottom;

(ii) One drum dropped diagonally on top chime or edge; and

(iii) One drum dropped flat on side.

Immediately following the drop test, each drum shall be rotated on its side and observed for evidence of leakage.

(2) *Drop test at 0°F.* At least three drums, filled to 98% actual capacity with a solution compatible with polyethylene and which remains liquid at 0°F, shall be conditioned for at least four hours immediately prior to test so that test drums and contents are at 0°F, or lower at start of drop tests. Test drums shall be dropped from a height of four feet onto solid concrete under the following conditions of orientation:

(i) One drum dropped flat on bottom;

(ii) One drum dropped diagonally on top chime or edge; and

(iii) One drum dropped flat on side.

Immediately following the drop test, each drum shall be rotated on its side and observed for evidence of leakage.

(3) *Hydrostatic pressure test.* At least three drums shall be tested by retaining hydrostatic pressure of at least 15 pounds per square inch at equilibrium for five minutes without showing pressure drop or evidence of leakage.

(4) *Vibration test.* At least three drums, filled to 98 percent actual capacity and closed as for use, shall be subjected to a vibration test, as follows. Each drum shall be constrained horizontally on a vibration platform, but otherwise be left free to move vertically, bounce and rotate. The test shall be performed for one hour using a verticle double-amplitude (peak-to-peak displacement) of one inch, at a frequency that causes the drum to be raised from the vibrating platform to such a degree that a piece of material of approximately 1/16" thickness can be passed between the bottom of the drum and the table. Immediately following the period of vibration, each drum shall be

removed from the platform, rotated on its side, and observed for evidence of leakage.

(5) *Static compression test.* At least three drums, filled to 98 percent actual capacity and closed as for use shall be subjected to a static compression test, as follows. Compression shall be applied to the load bearing areas of the top of the drum for a period of not less than 48 hours, in the following amounts:

Gallons [1]	Pounds [2]
2½ thru 6½	600
15	1,200
30	1,800
55	2,400

[1] Marked (rated) capacity not over (gallons).
[2] Compression weight load (pounds).

At the conclusion of the test period, each drum shall be rotated on its side and observed for evidence of leakage.

(b) *Failure criteria.* If, for a specific test, failure occurs, the test shall be repeated with three additional samples. Failure of any of the additional drums disqualifies that size or design from this specification until the condition causing failure has been determined and corrected and the test has been successfully repeated. For purposes of this section, the following constitutes test failure:

(1) Leakage;

(2) Loss of product retention capability;

(3) With regard to the hydrostatic pressure test, loss of pressure; or

(4) With regard to the static compression test, a top-to-bottom deflection of more than one inch.

(c) *Frequency of tests.* Tests shall be performed at the start of initial production and at intervals not to exceed one year and be repeated on any change of design, size, material or process method. Also, the drop test of § 178.19–7(a)(2) shall be performed after each continuous production run of no more than 1000 containers, or at four month intervals, whichever occurs first.

(d) *Test records.* Records of test results shall be made and retained at each producing plant for the most recent series of tests performed.

* * * * *

28. In § 178.21, paragraph (b) of § 178.21–1 would be added and the introductory text of paragraph (a) of § 178.21–3 preceding subparagraph (a)(1) would be revised and Note 1 following paragraph (a) of § 178.21–3 would be deleted, as follows:

§ 178.21 Specification 2T; polyethylene containers.

§ 178.21–1 Compliance.

* * * * *

(b) Each container shall be capable of withstanding the performance tests prescribed in § 178.21–3 without failure.

* * * * *

§ 178.21–3 Material.

(a) Containers shall be made of a polyethylene resin which has not been used previously.

* * * * *

29. In § 178.24, the specification title, the title and text of § 178.24–1 and paragraph (a) of § 178.24–2 would be revised, Notes 1 and 2 following paragraph (a) of § 178.24–2 would be removed, and paragraph (c) of § 178.24–3 would be added, as follows:

§ 178.24 Specification 2U; molded or thermoformed polyethylene containers.

§ 178.24–1 General requirements.

(a) Compliance is required in all details.

(b) Removable head containers and containers fabricated from film are not authorized.

(c) Each container shall be capable of withstanding the performance tests prescribed in § 178.24–7 without failure.

§ 178.24–2 Material.

(a) Containers shall be made of a polyethylene resin which has not been used previously.

* * * * *

§ 178.24–3 Construction capacity.

* * * * *

(c) Minimum rated capacity is one gallon.

* * * * *

30. In § 178.24a, paragraph (c) of § 178.24a–3 would be deleted and paragraph (a) would revised to read as follows:

§ 178.24a Specification 2E; inside polyethylene bottle.

* * * * *

§ 178.24a–3 Materials of construction.

(a) Each bottle shall be made of a blow-molding grade of polyethylene resin which has not been used previously and shall be constructed so that it will maintain its shape when standing empty and open

* * * * *

31. In § 178.27–1, Note 1 would be deleted, paragraph (a) would be revised and paragraph (b) would be added, as follows:

§ 178.27–1a Material requirements.

(a) Containers shall be made of a polyethylene resin which has not been used previously.

(b) Each container shall be capable of withstanding the performance tests prescribed in §§ 178.27–3 and 178.27–4 without failure.

* * * * *

32. In § 178.35, the section title, §§ 178.35–1 and 178.35–2 would be revised to read as follows:

§ 178.35 Specification 2S; polyethylene container.

§ 178.35–1 General requirements.

(a) Compliance is required in all details.

(b) Removable head containers are not authorized.

(c) Each container shall be capable of withstanding the performance tests prescribed in § 178.35–5 without failure.

§ 178.35–2 Material requirements.

(a) Containers shall be made of a polyethylene resin which has not been used previously.

* * * * *

33. In § 178.35a, the section title and § 178.35a–1 would be revised as follows:

§ 178.35a Specification 2SL; molded or thermoformed polyethylene container.

§ 178.35a–1 General requirements.

(a) Compliance is required in all details.

(b) Removable head containers and containers fabricated from film are not authorized.

(c) Each container shall be capable of withstanding the performance tests prescribed in §§ 178.35a–3 and 178.35a–4 without failure.

(d) Containers shall be made of a polyethylene resin which has not been used previously.

* * * * *

Appendix B [Removed]

34. Appendix B to Part 178 would be deleted in its entirety.

Authority: (49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1 and para. (a)(4) of App. A. Part 106.)

Note.—The Materials Transportation Bureau has determined that this document will not result in a major rule under terms of Executive Order 12291 or a significant regulation under DOT's regulatory policy and procedures (44 FR 11034) or require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321, *et seq.*) Based on limited information available concerning size and nature of entities likely to be affected by this proposal, I certify that this proposal will not, if promulgated, have a significant economic impact on a substantial number of small entities because the overall economic impact of this proposal would be minimal. A regulatory evaluation and environmental assessment are available for review in the Docket.

Issued in Washington, D.C. on August 17, 1982.

Alan I. Roberts,

Associate Director for Hazardous Materials. Transportation Bureau.

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