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**DEPARTMENT OF TRANSPORTATION****Research and Special Programs  
Administration****49 CFR Parts 171, 172, and 173****[Docket HM-126D; Notice No. 84-11]****Odorization of LPG, and Miscellaneous  
Proposals****AGENCY:** Materials Transportation  
Bureau (MTB), Research and Special  
Programs Administration, DOT.**ACTION:** Notice of proposed rulemaking.**SUMMARY:** This notice consists of three  
main elements.

*First:* The Hazardous Materials Regulations contain requirements, and exceptions, for the odorization of liquefied petroleum gas (LPG) offered for transportation in a portable tank and a cargo tank. However, there are no requirements for communicating the lack of odorization of LPG during transportation. Since LPG is odorless, it is proposed to require communication of this fact in those instances where odorization has not been added.

*Second:* Five minor revisions pertaining to marking are necessary to correct, clarify and enhance compliance with the communication regulations.

*Third:* The regulations do not contain marking requirements for bulk packagings and bulk transport vehicles that are not portable tanks, cargo tanks or tank cars because they have not been defined. Definitions and marking requirements for these bulk packagings and bulk transport vehicles are proposed.

**DATE:** Comments must be received no  
later than December 28, 1984.**ADDRESSES:** Comments to: Dockets  
Branch, Materials Transportation  
Bureau, U.S. Department of  
Transportation, Washington, D.C. 20590.  
It is requested that the docket number  
be identified and that five copies be  
submitted. 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 of 8:30  
a.m. and 5:00 p.m., Monday through  
Friday, except holidays. Persons wishing  
to receive confirmation of receipt of  
their comments should include a self-  
addressed, stamped postcard.

**FOR FURTHER INFORMATION CONTACT:** Lee E. Metcalfe, Office of Hazardous Materials Regulation, Materials Transportation Bureau, Washington, D.C. 20590, (202) 426-2075.

**SUPPLEMENTARY INFORMATION:**

**Problem A**

*Odorization of LPG.* In January 1980, a petition (P-769) was received from the National LP-Gas Association for updating the LPG odorization requirements as contained in 49 CFR 173.315. As stated in Note 2 to § 173.315(b)(1), 1.0 pound of ethyl mercaptan, 1.0 pound of thiophane, or 1.4 pounds of amyl mercaptan are considered sufficient to effectively odorize 10,000 gallons of LPG. Petition P-769 states that the level of thiophane should be increased to 6.4 pounds and that amyl mercaptan is no longer in production.

A petition received from a Denver, Colorado fire chief on January 31, 1979, and another petition, P-804, received from a New Jersey firemen's association on January 26, 1981, requested LPG either be odorized in transportation or the lack of odorization be visually communicated.

The term "LPG" is defined as any hydrocarbon gas or gas mixture which has a vapor pressure of less than 155 psig at 70 °F. Included in this group are gases composed predominantly of the following either by themselves or as mixtures: propane, propylene, butane (normal butane or iso-butane) and butylenes.

In addition to the petitions MTB has received pertaining to LPG odorization or warnings about the absence of odorization, the General Accounting Office of the Controller General of the United States (GAO) made a recommendation concerning the odorization of LPG in its July 1978 Report to Congress on *Liquefied Energy Gases Safety*. The GAO Report recommended that vehicles transporting LPG display a sign indicating whether or not the LPG being transported is odorized. MTB believes that if odorization or a warning sign is required, the warning should be used only to indicate that the LPG is not odorized.

MTB contacted LPG carrier representatives and National LP-Gas Association representatives and determined that there are between 250 and 300 cargo tanks being used nationwide to deliver LPG that is not odorized. It was also determined that between 500 and 600 tank cars, approximately 3500 cylinders, and approximately 100 portable tanks are

being used to deliver nonodorized LPG. Information provided by LPG carrier representatives and a National LP-Gas Association member indicates that less than 1 percent of the LPG transported by motor vehicle is not odorized, and approximately 94 percent of the LPG transported is transported by motor vehicle.

Available information indicates that odorization processes currently in use leave residual odorization (contamination) on the interior walls of the packagings. Under MTB's proposal, packagings used exclusively for nonodorized LPG would be marked NON-ODORIZED, and the assumption could be made that any packaging displaying only the LPG proper shipping name (or common name), as required by §§ 172.328 and 172.330, contains odorized LPG. Therefore, MTB concludes that the cost for marking NON-ODORIZED on cylinders, portable tanks, cargo tanks, and tank cars used to transport LPG that is not odorized will provide the least expensive, positive warning to emergency service personnel or anyone who approaches an LPG package that is leaking.

MTB believes that markings with ½-inch letters on cylinders and 2-inch letters on portable tanks will be adequate, while 4-inch markings on cargo tanks and tank cars will provide the needed warning.

A cost evaluation for marking the cylinders, portable tanks, cargo tanks, tank cars and multi-unit tank car tanks, used for transporting unodorized LPG indicates the annual cost would approximate \$5,500.

These cost estimates are for "permanent", pressure sensitive, vinyl markings that have a 5 to 7 year life expectancy, but do not include a cost estimate for affixing the markings to the packagings.

There is a requirement in § 173.315(b)(1) for LPG to be odorized in portable tanks and cargo tanks, unless odorization would be harmful to any further processing of the LPG; however, there are no requirements for marking a portable tank or cargo tank to indicate that the LPG is not odorized. Also, there is no odorization requirement for LPG in cylinders or tank cars. MTB believes the petitions from the National LP-Gas Association and the firefighters have merit and MTB proposes to amend the odorization provisions and to establish odorization requirements by amending §§ 172.325; 172.326; 172.328; 172.330; 173.304; 173.314, and 173.315 accordingly.

**Problem B**

*Source of markings for portable tank not visible in transportation.* Section

172.326 contains the marking requirements for portable tanks and paragraph (d) of that section contains a requirement for marking a transport vehicle or a freight container on each side and each end with the identification number of any portable tank being transported in such a manner that the markings are not visible. Under § 174.3 and § 177.823, a carrier may not move a transport vehicle unless it is properly marked for the hazardous materials being transported. There is, however, no requirement in the regulations for the person offering a portable tank for transportation to provide to the carrier the required identification number display if the numbers on the portable tank will not be visible in transportation. On October 15, 1981, the American Trucking Associations petitioned MTB (P-836) to correct this inconsistency. MTB is proposing such a requirement in paragraph (d)(1) of § 172.326.

**Problem C**

*Inconsistency between § 172.328(e) and § 172.336(c).* Section 172.328(e) specifies that an identification number must be removed, or changed to identify the hazardous materials loaded in a cargo tank that had previously contained another material. However, paragraphs (c)(4) and (c)(5) of § 172.336 contain special provisions for transporting different liquid distillate fuels under one identification number. This inconsistency had led to requests for clarification. MTB is proposing to revise § 172.328(e) to recognize the special provisions in § 172.336(c).

**Problem D**

*Identification numbers prohibited on certain placards.* Section 172.334(a) prohibits the display of an identification number on a POISON GAS, RADIOACTIVE and an EXPLOSIVES A and EXPLOSIVES B placard. This listing is incomplete and, therefore, misleading because it does not include the DANGEROUS and BLASTING AGENTS placards. MTB is proposing to revise § 172.334(a) to add the names of these two placards for clarification. Also, MTB is proposing to add paragraph (g) to § 172.334 which would prohibit the addition of any color, number, letter or word to an identification number display. This prohibition is needed to assure standardization and readability of the display.

**Problem E**

*Alternative identification number display method.* Paragraph (b) of § 172.336 authorizes, under certain

conditions, the display of identification numbers on a plain white square-on-point configuration. As written, some persons subject to the regulations have interpreted the word "may" to mean that identification numbers may be displayed but the display is not required. Numerous requests for interpretation of this requirement have been received. The regulations (§ 172.300(a), § 172.326, § 172.328 and § 172.330) require the display of identification numbers on portable tanks, cargo tanks and tank cars. Section 172.332 specifies the procedure for displaying identification numbers on orange panels and placards. Section 172.336(b) authorizes the display on the white square-on-point configuration as an alternative to the orange panel when display on a placard is not authorized. MTB proposes to revise § 172.336(b) to clarify the requirement for display of identification numbers.

#### Problem F

*Replacing lost, damaged or destroyed identification number displays.* Section 172.338 contains a requirement for replacing lost, damaged or destroyed identification number displays. The requirement does not include the plain white square-on-point display as one that must be replaced. MTB is proposing a correction and a revision of the section to require replacement if any of the identification numbers is lost, damaged or destroyed. This would improve the hazard communication system and would make the placarding and marking requirements consistent. Replacement identification numbers may be entered by hand within the white rectangle on appropriate placards, white square-on-configurations or orange panels.

#### Problem G

*Definition of liquefied petroleum gas.* Liquefied petroleum gas (LPG) is not defined in the Hazardous Materials Regulations. MTB proposed to define LPG as any petroleum gas that is liquid at 70°F, having a vapor pressure of less than 155 psia and composed predominantly of the following hydrocarbons: propane, propylene, butane, (normal butane or iso-butane) and butylenes, either by themselves or as mixtures.

#### Problem H

*Hazardous warning markings on bulk packagings.* Soon after the May 22, 1980, and November 10, 1980, dockets (45 FR 34560 and 45 FR 74640) were published MTB discovered that several vehicles and packagings were not covered by the identification number marking

regulations. This resulted from the fact that EPA established the hazardous waste manifest system in February 1980 an MTB supporting hazardous waste regulations were published in the May 22, 1980 docket. Much of the EPA regulated hazardous waste consists of materials in the ORM-E category which can be transported in non-DOT specification packagings and transport vehicles. Some of these are identified as dump trucks, hopper cars, roll-on-roll-off containers, open top freight containers, and hopper type motor vehicles.

On September 30, 1983, petition number P-921 was received from the Louisiana State Department of Public Safety requesting these bulk hazardous waste transporters be made subject to the regulations pertaining to the display of the hazardous materials identification number.

MTB believes this petition has merit and proposes to define bulk packagings to include transport vehicles and exclude vessels and barges. MTB also proposes to prescribe marking requirements.

#### Problem I

*Placarding of rail car transporting class A explosives containing poison A.* Section 174.25(a) contains a placarding requirement in the placard notation table for displaying the EXPLOSIVES A and POISON GAS placards on a rail car transporting ammunition containing a class A explosive and a poison A. Through an oversight this placarding requirement was not put in § 172.510 when the regulations were consolidated in the May 22, 1980, rulemaking (45 FR 34560). MTB proposes to correct this omission.

#### Classification of Rule; Reporting Requirements; and impact on Small Entities.

*A. Non-Major Rule.* MTB 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. This determination is made on the basis that a final rule consistent with this proposal: (1) Will have an annual effect on the economy that will not exceed \$100 million, (2) will cause no major increase in costs or prices for consumers, individual industries, Federal, State, or Local governmental agencies, or geographic regions, (3) will not result in significant adverse effects on competition, employment, investment, productivity, innovation, or

the ability of U.S.-based enterprises to compete with foreign-based enterprises in domestic or export markets, and (4) it is not anticipated to have a significant environmental impact. A regulatory analysis is available for review in the docket.

*B. Paperwork Reduction Act.* There are no information collection requirements in this proposed rulemaking.

*C. Impact on Small Entities.* Based on the limited information available concerning size and nature of entities likely to be affected, I certify that this proposal will not, if promulgated, have a significant economic impact on a substantial number of small entities. This determination is based on the fact that the estimated cost of implementation would be relatively insignificant.

#### List of Subjects

##### 49 CFR Part 171

Hazardous materials transportation, Definitions, Labeling, and Packaging.

##### 49 CFR Part 172

Hazardous materials transportation, Labeling, Marking, and Placarding.

##### 49 CFR Part 173

Hazardous materials transportation, Packaging, and Containers.

In consideration of the foregoing, 49 CFR Parts 171, 172 and 173 would be amended as follows:

#### PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. In § 171.8 the definitions for "bulk packaging", "liquefied petroleum gas" and "non-bulk packaging" would be added in the appropriate sequence to read as follows:

##### § 171.8 Definition and abbreviations.

"Bulk packaging" means a packaging, other than a vessel or barge, but including a transport vehicle, (1) having an internal volume greater than 118.88 gallons (450 liters) as a containment unit for a liquid, (2) having a capacity greater than 881.84 pounds (400 kilograms) as a containment unit or a solid, or (3) having a water capacity greater than 1000 pounds (453.59 kilograms) as a containment unit for a compressed gas.

"Liquefied petroleum gas" is any hydrocarbon gas that has a vapor pressure of less than 155 psia at 70°F, and is composed predominantly of propane, propylene, butane (normal and

iso-butane) and butylene, separately or as a mixture.

"Non-bulk packing" means a packaging (1) having an internal volume of 118.68 gallons (450 liters) or less as a containment unit for a liquid; (2) having a capacity of 881.84 pounds (400 kilograms) or less as a containment unit for a solid, or (3) having a water capacity of 1000 pounds (453.59 kilograms) or less as a containment unit for a compressed gas.

#### PART 172—HAZARDOUS MATERIALS TABLES AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

2. Section 172.325 would be added to read as follows:

##### § 172.325 Cylinders.

Each specification cylinder, except a Specification 2P, 2Q and 39, that contains a nonodorized liquefied petroleum gas as authorized in § 173.304(d)(5) of this subchapter shall be legibly marked NON-ODORIZED in letters not less than ½-inch in height on a contrasting background near the marked proper shipping name.

3. In § 172.326, paragraph (d) would be amended by changing the comma at the end of the existing text to a period and adding a sentence to follow it as set forth below. Paragraphs (d)(1) and (f) would also be added to read as follows:

##### § 172.326 Portable tanks.

(d) \* \* \* Also, if the marking required in paragraph (f) of this section is not visible, a transport vehicle or freight container used to transport a portable tank containing nonodorized liquefied petroleum gas must be marked on each side and each end near the identification number display with the NON-ODORIZED marking prescribed in § 172.328(c)(3).

(1) A person who offers a motor carrier a properly marked portable tank for transportation in a transport vehicle or freight container in such a manner that the markings will not be visible must provide the motor carrier the required identification numbers on placards or the white square-on-point configuration, as appropriate, and the NON-ODORIZED marking display, if required.

(f) Each portable tank that contains a nonodorized liquefied petroleum gas as authorized in § 173.315(b)(1) of this subchapter shall be legibly marked NON-ODORIZED in letters not less than

2-inches in height on a contrasting background near the marked proper shipping name.

4. In § 172.328, paragraphs (c)(3) would be added and paragraph (e) would be revised to read as follows:

##### § 172.328 Cargo tanks.

(c) \* \* \*  
(3) The word NON-ODORIZED in black letters not less than 4-inches in height on a white display panel near the proper shipping name or identification numbers whenever liquefied petroleum gas is shipped in a cargo tank without odorization as authorized in § 173.315(b)(1) of this subchapter. The white display panel shall be 6-¾-inches in height and 22-½-inches wide with a ¼-inch black border included in the measurements.

(e) A cargo tank marked with the name or identification number of a hazardous material may not be used to transport material requiring any other marking unless that marking is: (1) removed, (2) changed to identify the hazardous material in the cargo tank or cargo tank compartments, or (3) in conformance with § 172.336 (c)(4) or (c)(5) of this subchapter, whichever is appropriate.

5. In § 172.330, paragraphs (a)(1)(iii) and (c)(3) would be added to read as follows:

##### § 172.330 Tank cars.

(a) \* \* \*  
(1) \* \* \*  
(iii) The word NON-ODORIZED in letters not less than 4-inches in height on a contrasting background near the marked name of contents whenever liquefied petroleum gas is transported in a tank car without odorization as authorized in § 173.314(f)(3) of this subchapter.

(c) \* \* \*  
(3) The word NON-ODORIZED in letters not less than 2-inches in height near the marked name of contents whenever liquefied petroleum gas is transported in a multi-unit tank car tank without odorization as authorized in § 173.314(f)(3) of this subchapter.

6. Section 172.331 would be added to read as follows:

##### § 172.331 Bulk packagings.

(a) No person may offer for transportation or transport a bulk packaging containing a hazardous material unless the bulk packaging is marked as required by § 172.332 on each side and each end with the

identification number specified for the material in § 172.101 or § 172.102 (when authorized).

(1) A person who offers a motor carrier a hazardous material for transportation in a bulk packaging shall provide the motor carrier the required identification numbers on placards or plain white square-on-point configurations, as appropriate, or shall affix orange panels containing the required identification numbers, prior to or at the time the material is offered for transportation unless the bulk packaging is already marked with the identification number required by this subpart in accordance with paragraph (c) of this section and § 173.29(e) of this subchapter.

(2) A person who offers a bulk packaging containing a hazardous material for transportation shall affix the required identification numbers on panels, square-on-point configurations or placards prior to or at the time the bulk packaging is offered for transportation unless it is already marked with identification numbers as required by this subpart.

(b) A bulk packaging marked with the name or identification number of a hazardous material may not be used to transport any other material unless the marking is removed, or changed to identify the hazardous materials in the bulk packaging, whichever is appropriate.

(c) A bulk packaging that is required to be marked with the name or identification number of a hazardous material must remain marked when empty unless it is—

(1) Reloaded with a material that requires another marking or no marking, or

(2) Sufficiently cleaned of residue and purged of vapor to remove any potential hazard.

7. Section 172.334 would be amended by revising paragraph (a) and adding paragraphs (g) and (h) to read as follows:

##### § 172.334 Identification numbers; prohibited display.

(a) An identification number may not be displayed on a POISON GAS, RADIOACTIVE, EXPLOSIVES A, EXPLOSIVES B, BLASTING AGENTS or DANGEROUS placard.

(g) No identification number may be displayed on a placard, orange panel or white square-on-point configuration unless—

(1) The identification number displayed is associated with the proper shipping name to which it is assigned in

§ 172.101 or 172.102 (when authorized), and

(2) The identification number on a placard is displayed on the placard assigned to the material or the hazard class of the material in § 172.504 and is an authorized display.

(h) No identification number marking display which is required, authorized, or specified in this subchapter may contain any color, number, letter, symbol or word other than that authorized or specified in this subchapter.

8. In § 172.336, the introductory text of paragraph (b) would be revised to read as follows:

§ 172.336 Identification numbers; special provisions and exceptions.

(b) For hazardous materials in hazard classes for which placards are not specified (e.g., ORM-A, B, C, D, or E), identification numbers, when required, must be displayed on either orange panels (see § 172.332(b)) or on plain white square-on-point configurations having the same outside dimensions as placards. For materials in hazard classes for which placards are specified and identification number displays are required, but for which identification numbers may not be displayed on the placards authorized for the material (e.g., Irritating materials or Poison A), identification numbers must be displayed on orange panels in association with the required placards. An identification number displayed as authorized or required by this paragraph is not considered to be a placard.

9. Section 172.338 would be revised to read as follows:

§ 172.338 Replacement of identification numbers.

If any of the identification number markings on a placard, orange panel, or white square-on-point configuration that is required to be displayed are lost, damaged or destroyed during transportation, the carrier shall replace all the missing identification number(s) as soon as practicable. However, in such a case, the numerals may be entered by hand on the appropriate placard, white square-on-point configuration or orange panel providing the correct identification numbers are entered legibly using an indelible marking material. When entered by hand, the identification numbers must be located in the white display area as shown in § 172.332. This section does not preclude required compliance with the placarding requirements of this subchapter.

10. Section 172.510 would be amended by adding paragraph (e) to read as follows:

§ 172.510 Special placarding provisions: Rail

(e) Placarding of rail car transporting an Explosive A containing Poison A.

Each rail car used for transporting class A explosive ammunition and having an additional hazard of Poison A must be placarded EXPLOSIVES A and POISON GAS.

#### PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

11. In § 173.29 the section title would be revised and paragraph (e) would be added to read as follows:

§ 173.29 Empty packagings, portable tanks, cargo tanks, tank cars, and bulk packagings.

(e) No person may offer for transportation and no carrier may transport an empty bulk packaging containing the residue of a hazardous material unless each opening is securely closed and free from leaks.

12. In § 173.304 paragraph (d)(5) would be added to read as follows:

§ 173.304 Charging of cylinders with liquefied compressed gas.

(d) \* \* \*

(5) All liquefied petroleum gas offered for transportation in cylinders, except Specifications 2P, 2Q and 39, must be odorized as indicated in Note 1 by the addition of a warning agent of such character as to be detectable, by a distinct odor, down to a concentration in air of not over one-fifth the lower limit of flammability as indicated in Note 2: Provided, however—

(i) That odorization is not required if harmful in the use or further processing of the liquefied petroleum gas, or if odorization will serve no useful purpose as a warning agent in such use or further processing.

(ii) That if odorization is not used, each cylinder containing liquefied petroleum gas shall be marked as specified in § 172.325 of this subchapter.

Note 1: Odorants must be determined to be in conformance with § 173.304(d)(5) by tests or experience. The use of 1.0 pound ethyl mercaptan, or 6.4 pounds of thiophane per 10,000 gallons of liquefied petroleum gas shall be considered sufficient to meet the requirements of § 173.304(d)(5). This note does not exclude the use of any other odorant (or mixture of odorants) in sufficient quantity to meet the requirements of § 173.304(d)(5).

Note 2: The lower limits of flammability of the more commonly used liquefied petroleum gases are: Propane, 2.1 percent; Butane, 1.5 percent; Propylene, 2.8; Butylene, 1.6. These figures represent volumetric percentages of gas-air mixture in each case.

13. In § 173.314, paragraph (f)(3) would be added to read as follows:

§ 173.314 Requirements for compressed gases in tank cars.

(f) \* \* \*

(3) Odorization. When offered for transportation by tank cars or multi-unit tank car tanks, all liquefied petroleum gas must be odorized as indicated in Note 1 by the addition of a warning agent of such character as to be detectable, by a distinct odor, down to a concentration in air of not over one-fifth the lower limit of flammability as indicated in Note 2:

Provided, however—

(i) That odorization is not required if harmful in the use or further processing of the liquefied petroleum gas, or if odorization will serve no useful purpose as a warning agent in such use of further processing.

(ii) That if odorization is not used, each tank car and multi-unit tank car tank containing liquefied petroleum gas shall be marked as specified in § 172.330 (a) and (c) respectively of this subchapter.

Note 1: Odorants must be determined to be in conformance with § 173.314(f)(3) by test or experience. The use of 1.0 pound of ethyl mercaptan, or 6.4 pounds of thiophane per 10,000 gallons of liquefied petroleum gas shall be considered sufficient to meet the requirements of § 173.314(f)(3). This note does not exclude the use of any other odorant (or mixture of odorants) in sufficient quantity to meet the requirements of § 173.314(f)(3).

Note 2: The lower limits of flammability of the commonly used liquefied petroleum gases are: Propane, 2.1 percent; Butane, 1.5 percent; Propylene, 2.0; Butylene, 1.6. These figures represent volumetric percentages of gas-air mixture in each case.

14. In § 173.315, the heading and paragraph (b)(1) would be revised to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

(b) \* \* \*

(1) Odorization. All liquefied petroleum gas offered for transportation in cargo tanks or portable tanks must be odorized as indicated in Note 1 by the addition of a warning agent of such character as to be detectable, by a distinct odor, down to a concentration in air of not over one-fifth the lower limit

of flammability as indicated in Note 2:  
Provided, however—

(i) That odorization is not required if harmful in the use or further processing of the liquefied petroleum gas, or if odorization will serve no useful purpose as a warning agent in such use or further processing.

(ii) That if odorization is not used, each portable tank and cargo tank containing liquefied petroleum gas shall be marked as specified in § 172.326(f) and 172.328(c) respectively of this subchapter.

**Note 1:** Odorants must be determined to be in conformance with § 173.315(b)(1) by tests or experience. The use of 1.0 pound of ethyl mercaptan, or 6.4 pounds of thiophane per 10,000 gallons of liquefied petroleum gas shall be considered sufficient to meet the requirements of § 173.315(b)(1). This note does not exclude the use of any other odorant (or mixture of odorants) in sufficient quantity to meet the requirements of § 173.315(b)(1).

**Note 2:** The lower limit of flammability of the commonly used liquefied petroleum gases are: Propane, 2.1 percent; Butane, 1.5 percent; Propylene, 2.0; Butylene, 1.0. These figures represent volumetric percentages of gas-air mixture in each case.

(49 U.S.C. 1803, 1804, 1808; 49 CFR 1.53, App. A to Part 1, and Paragraph (a)(3) of App. A to Part 106.)

Issued in Washington, D.C., on September 21, 1984.

**Thomas J. Charlton,**

*Acting Associate Director for Hazardous Materials Regulation, Materials Transportation Bureau.*

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