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Hazardous Materials: Miscellaneous Amendments (RRR); Final Rule

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

49 CFR Parts 107, 171, 172, 173, 175, 176, 177, 178, 179, and 180

[Docket No. PHMSA–2013–0225 (HM–218H)]

RIN 2137–AF04

Hazardous Materials: Miscellaneous Amendments (RRR)

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: In this final rule, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is amending the Hazardous Materials Regulations (HMR) to make miscellaneous amendments in order to update and clarify certain regulatory requirements. These amendments are designed to promote safer transportation practices, address petitions for rulemaking, respond to National Transportation Safety Board (NTSB) Safety Recommendations, facilitate international commerce, make editorial corrections, and simplify the regulations. The amendments in this rulemaking include, but are not limited to, removing the packing group (PG) II designation for certain organic peroxides, self-reactive substances, and explosives; incorporating requirements for trailers of manifolded acetylene cylinders; providing requirements to

allow for shipments of damaged wet electric batteries; and revising the requirements for the packaging of nitric acid, testing of pressure relief devices on cargo tanks, and shipments of black or smokeless powder for small arms.

DATES:

Effective Date: This rule is effective July 5, 2016.

Voluntary Compliance Date: Voluntary compliance with all amendments is authorized June 2, 2016.

Incorporation by reference Date: The incorporation by reference of certain publications listed in this rule is approved by the Director of the Federal Register as of July 5, 2016.

FOR FURTHER INFORMATION CONTACT:

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I. Background

On January 23, 2015, PHMSA published a notice of proposed rulemaking (NPRM) [Docket No. PHMSA–2013–0225 (HM–218H); 80 FR 3787] that proposed amendments to update and clarify existing requirements of the Hazardous Materials Regulations (HMR; 49 CFR parts 171–180). Both the NPRM and this final rule are part of the Department of Transportation’s Retrospective Regulatory Review (RRR) process designed to identify ways to improve the HMR through the extensive review of both the HMR and previously issued letters of interpretation. In addition, the NPRM proposed regulatory requirements in response to seven (7) petitions for rulemaking and two (2) NTSB Safety Recommendations. The changes proposed in the NPRM are summarized below:

Petitions for Rulemaking

The following table provides a brief summary of the petitions addressed in the NPRM and the affected sections. These petitions are included in the docket for this proceeding:

Petition	Petitioner	Summary and affected section(s)
P–1590	Dangerous Goods Advisory Council (DGAC).	Remove the packing group (PG) II designation for certain organic peroxides, self-reactive substances, and explosives in the § 172.101 Hazardous Materials Table (HMT).
P–1591	Air Products and Chemicals, Inc	Amend the marking requirements for poisonous-by-inhalation shipments transported in accordance with the International Maritime Dangerous Goods (IMDG) Code or Transport Canada’s Transport of Dangerous Goods (TDG) Regulations (§ 171.23).
P–1597	DGAC	Require that emergency response telephone numbers be displayed on shipping papers numerically (§ 172.604).
P–1601	United Parcel Service (UPS)	Amend the packaging instructions for certain shipments of nitric acid by requiring intermediate packaging for glass inner packagings (§ 173.158).
P–1604	National Propane Gas Association (NPGA).	Extend the pressure test and internal visual inspection test period to 10 years for certain MC 331 cargo tanks in dedicated propane delivery service (§ 180.407).
P–1605	Compressed Gas Association (CGA)	Incorporate by reference in § 171.7 CGA G–1.6–2011, <i>Standard for Mobile Acetylene Trailer Systems</i> , Seventh Edition, copyright 2011 (§§ 171.7 and 173.301).
P–1609	Truck Trailer Manufacturers Association (TTMA).	Clarify the requirements applicable to the testing of pressure relief devices for cargo tank motor vehicles (§ 180.407).

NTSB Safety Recommendations

The following table provides a brief summary of the NTSB recommendations

addressed in the NPRM and the affected sections. These recommendations are

included in the docket for this proceeding:

Recommendation	Summary and affected section
H-09-01	Modify 49 CFR 173.301 to clearly require (1) that cylinders be securely mounted on mobile acetylene trailers and other trailers with manifolded cylinders to reduce the likelihood of cylinders being ejected during an accident and (2) that the cylinder valves, piping, and fittings be protected from multidirectional impact forces that are likely to occur during highway accidents, including rollovers.
H-09-02	Require fail-safe equipment that ensures that operators of mobile acetylene trailers can perform unloading procedures only correctly and in sequence (§ 173.301).

Amendments Based on PHMSA Review

- Revise § 107.402(d)(1)(i) to replace the term “citizen” with the term “resident.”
- Revise § 107.402(e) to require that a (cigarette) lighter certification agency submits a statement that the agency is independent of and not owned by a lighter manufacturer, distributor, import or export company, or proprietorship.
- Revise § 107.402(f) to require portable tank and multi-element gas container (MEGC) certification agencies to submit a statement indicating that the agency is independent of and not owned by a portable tank or MEGC manufacturer, owner, or distributor.
- Revise § 107.807 to require a cylinder inspection agency to be independent of and not owned by a cylinder manufacturer, owner, or distributor.
- Remove the entry for CGA Pamphlet C-1.1 in Table 1 to § 171.7.
- Revise the § 172.101 HMT to add Special Provision B120 to Column (7) for the entry “Calcium nitrate, UN1454.”
- Revise the § 172.101 HMT to remove vessel stowage provision 24E from Column (10B) for the entry for “Propellant, solid, UN0501.”
- Revise the § 172.101 HMT entry for “Corrosive liquids, flammable, n.o.s., UN2920, PG II” for consistency with the United Nations (UN) Model Regulations, International Maritime Dangerous Goods (IMDG) Code, and the International Civil Aviation Organization Technical Instructions (ICAO TI) such that this entry is eligible for the limited quantity exceptions.
- Revise the § 172.101 HMT entry for “Oxidizing solid, corrosive, n.o.s., UN3085, PG II” for consistency with the UN Model Regulations, IMDG Code, and the ICAO TI such that this entry is eligible for the limited quantity exceptions.
- Revise the § 172.101 HMT entries for “Trinitrophenol (picric acid), wetted, with not less than 10 percent water by mass, UN3364” and “Trinitrophenol, wetted with not less than 30 percent water, by mass, UN1344” to harmonize the HMR with the UN Model Regulations, IMDG Code, and the ICAO TI to clarify that the 500

gram limit per package does not apply to UN1344 but does apply to UN3364.

- Revise § 172.102, Special Provision 136 assigned to the proper shipping name “Dangerous goods in machinery or apparatus, UN3363” to include reference to subpart G of part 173.
- Remove reference to obsolete Special Provision 18 for the § 172.101 HMT entry “Fire extinguishers, UN1044” and in § 180.209(j) and provide correct cross reference to § 173.309.
- Correct a reference in § 172.201 to exceptions for the requirement to provide an emergency response telephone number on a shipping paper.
- Revise §§ 172.301(f), 172.326(d), and 172.328(e) to include the clarification that the “NOT-ODORIZED” or “NON-ODORIZED” marking may appear on packagings used for both non-odorized and odorized liquefied petroleum gas (LPG) and remove the effective date of October 1, 2006 or “after September 30, 2006,” if it appears in these paragraphs, as the effective date has passed.
- Amend § 172.406(d) by clearly authorizing the use of labels described in part 172, Subpart E with a dotted or solid line outer border on a surface background of contrasting color.
- Update a mailing address in § 172.407(d)(4)(ii).
- Clarify the § 172.514(c) marking size requirements for an intermediate bulk container (IBC) that is labeled instead of placarded by replacing the bulk package marking reference with the non-bulk marking reference, specifically § 172.301(a)(1).
- Revise § 173.4a(a) to clarify that articles (including aerosols) are not eligible for excepted quantity reclassification under § 173.4a, although some are eligible to be shipped as small quantities by highway and rail in § 173.4.
- Clarify that the § 173.24a(c)(1)(iv) requirements do not apply to limited quantities packaged in accordance with § 173.27(f)(2).
- Clarify the § 173.27(f)(2) quantity limits for mixed contents packages.
- Clarify the requirements applicable to bulk transportation of combustible liquids by adding a new subparagraph § 173.150(f)(3)(xi) stating that the

registration requirements in subpart G of part 107 are applicable and revising § 173.150(f)(3)(ix) and (x) for punctuation applicable to a listing of requirements.

- Add a new paragraph (k) in § 173.159 to allow shippers to prepare for transport and offer into transportation damaged wet electric storage batteries.
- Revise § 173.166(e)(6) to add the words “or cargo vessel.”
- Revise §§ 173.170 and 173.171 by changing the term “motor vehicle” to “transport vehicle” to allow for motor vehicles comprised of more than one cargo-carrying body to carry 100 pounds of black or smokeless powder reclassified as Division 4.1 in each cargo-carrying body instead of 100 pounds total in the motor vehicle.
- Revise § 173.199(a)(4) by removing the reference to the steel rod impact test in § 178.609(h).
- Clarify the § 173.225 Packing Method table for organic peroxide materials.
- Amend the § 172.101 HMT bulk packaging section reference in Column (8C) from § 173.240 to § 173.216 for the entries “Asbestos, NA2212,” “Asbestos, amphibole *amosite*, *tremolite*, *actinolite*, *anthophyllite*, or *crocidolite*, UN2212,” and “Asbestos, chrysotile, UN2590.” In addition, we proposed to revise paragraph (c)(1) in § 173.216 by authorizing the use of bulk packages prescribed in § 173.240.
- Add a new paragraph (h) to § 173.314 to require odorization of liquefied petroleum gas when contained in rail cars and revise § 173.315(b)(1) to address odorant fade and under-odorization in certain cargo tanks.
- Amend § 173.306(k)(1) to clarify that aerosols shipped for recycling or disposal by motor vehicle containing a limited quantity are afforded the applicable exceptions provided for ORM-D materials granted under §§ 173.306(i) and 173.156(b).
- Create a new paragraph (d) in § 175.1 stating that the HMR does not apply to dedicated air ambulance, firefighting, or search and rescue operations.

- Correct § 175.8 by adding the appropriate 14 CFR part 125 citations.
- Clarify the § 175.10 exceptions for passengers, crewmembers, and air operators in paragraphs (a)(18), (22), and (24) for the carriage of hazardous materials aboard a passenger aircraft.
- Clarify § 175.75(e)(2) by replacing the word “located” with “certificated.”
- Clarify § 176.30(a)(4) by replacing the word “packaging” with “package.”
- Clarify that the loading restrictions in § 177.835(c)(1) through (4) are applicable to § 177.848(e).
- Revise § 178.65(i)(1) to correctly reference the manufacturer’s report requirements in § 178.35(g).
- Clarify § 178.337–17(a) to eliminate confusion of the name plate and specification plate requirements.

- Correct an editorial error in the formula in § 178.345–3(c)(1).
- Include provisions consistent with the non-bulk packaging and IBC approval provisions for Large Packagings in § 178.955.
- Clarify the requirements for Federal Railroad Administration (FRA) approval of tank car designs in § 179.13.

II. Incorporation by Reference Discussion Under 1 CFR Part 51

The CGA G–1.6–2011, *Standard for Mobile Acetylene Trailer Systems, Seventh Edition, copyright 2011* and the *AAR Manual of Standards and Recommended Practices, Section C—Part III, Specifications for Tank Cars, Specification M–1002, (AAR Specifications for Tank Cars), December 2000* are available for interested parties

to purchase in either print or electronic versions through the parent organization Web sites. The price charged helps to cover the cost of developing, maintaining, hosting, and accessing these standards. The specific standards are discussed in greater detail in the Comment Discussion (*Mobile Acetylene Trailer Systems (P–1605) and NTSB Safety Recommendations H–09–01 and H–09–02*) and Section-by-Section Review of § 171.7.

III. Comment Discussion

In response to PHMSA’s January 23, 2015 NPRM [80 FR 3787], PHMSA received comments from the following organizations and individuals (we include the referenced docket number in numerical order for each comment):

Commenter	Docket ID No.
Anonymous	PHMSA–2013–0225–0013
Aaron Adamczyk	PHMSA–2013–0225–0014
Girard Equipment, Inc	PHMSA–2013–0225–0019
Truck Trailer Manufacturers Association (TTMA)	PHMSA–2013–0225–0020, PHMSA–2013–0225–0068
Peter Weis	PHMSA–2013–0225–0021
Massachusetts Department of Fire Services	PHMSA–2013–0225–0022
Air Products and Chemicals, Inc	PHMSA–2013–0225–0023
National Association of State Fire Marshalls (NASFM)	PHMSA–2013–0225–0024 PHMSA–2013–0225–0029
Paul Berland	PHMSA–2013–0225–0025
Adrian Mendoza	PHMSA–2013–0225–0026
Mary Shesgreen	PHMSA–2013–0225–0027
Betts Industries, Inc	PHMSA–2013–0225–0028
New Hampshire Office of the State Fire Marshall	PHMSA–2013–0225–0030
Shelley Brown	PHMSA–2013–0225–0031
Mary M Lane	PHMSA–2013–0225–0032
American Trucking Associations (ATA)	PHMSA–2013–0225–0033
National Transportation Safety Board (NTSB)	PHMSA–2013–0225–0034
URS Corporation	PHMSA–2013–0225–0035
The Compressed Gas Association (CGA)	PHMSA–2013–0225–0036, PHMSA–2013–0225–0052
Marnelle Curtis	PHMSA–2013–0225–0037
Frack Free Illinois	PHMSA–2013–0225–0038
Battery Council International (BCI)	PHMSA–2013–0225–0039
Riki Ott	PHMSA–2013–0225–0040
Anonymous	PHMSA–2013–0225–0041
Stephanie Bilenko	PHMSA–2013–0225–0042
Doug Ower	PHMSA–2013–0225–0043
Beverley	PHMSA–2013–0225–0044
Gloria Charland	PHMSA–2013–0225–0045
Institute of Makers of Explosives (IME)	PHMSA–2013–0225–0046
National Association of Chemical Distributors (NACD)	PHMSA–2013–0225–0047
Utility Solid Waste Activities Group (USWAG)	PHMSA–2013–0225–0048, PHMSA–2013–0225–0069
Public.Resource.Org, Greenpeace USA	PHMSA–2013–0225–0049
Chlorine Institute	PHMSA–2013–0225–0050
American Coatings Association (ACA)	PHMSA–2013–0225–0051
American Chemistry Council (ACC)	PHMSA–2013–0225–0053
International Association of Fire Chiefs (IAFC)	PHMSA–2013–0225–0054
Dangerous Goods Advisory Council (DGAC)	PHMSA–2013–0225–0055
Dow Chemical Company	PHMSA–2013–0225–0056
United Parcel Service (UPS)	PHMSA–2013–0225–0057
Veolia ES Technical Solutions, LLC (Veolia)	PHMSA–2013–0225–0058
Council on Safe Transportation of Hazardous Articles (COSTHA)	PHMSA–2013–0225–0059
James Scott	PHMSA–2013–0225–0060
National Propane Gas Association (NPGA)	PHMSA–2013–0225–0061
Anonymous	PHMSA–2013–0225–0062
Association of American Railroads (AAR)	PHMSA–2013–0225–0063
Harv Teitelbaum	PHMSA–2013–0225–0064

Commenter	Docket ID No.
Marvin Feil	PHMSA-2013-0225-0065
Reusable Industrial Packaging Association (RIPA)	PHMSA-2013-0225-0066
Jones Chemical, Inc	PHMSA-2013-0225-0067
Sporting Arms and Ammunition Manufacturers Institute, Inc. (SAAMI)	PHMSA-2013-0225-0070
Trammo, Inc	PHMSA-2013-0225-0073

A discussion of the comments and PHMSA's position regarding action in this final rule is provided below. We begin with a discussion of comments on the proposals to revise the HMR based on petitions for rulemaking and NTSB Safety Recommendations. Note that additional comments are addressed in the Section-by-Section Review. Further, we discuss comments and proposals not adopted under this final rule, later discussing comments that are outside the scope of the proposals of this rulemaking.

A. Petitions for Rulemaking and NTSB Safety Recommendations

Amendments to the HMR for Organic Peroxides, Self-Reactive Substances and Explosives (P-1590)

The DGAC submitted a petition (P-1590) requesting that PHMSA amend the HMR by removing the PG II designation in Column (5) of the § 172.101 HMT for all organic peroxides (Division 5.2), self-reactive substances (Division 4.1), and explosives (Class 1). The DGAC states that organic peroxides, self-reactive substances, and explosives are not assigned a packing group in accordance with either the HMR or international regulations. Despite the absence of regulatory language for determining a packing group assignment for these materials, proper shipping names for these materials listed in the HMT are assigned a default PG II. The DGAC asserts that the presence of a PG assignment for these entries is a constant source of confusion that leads to frustration of shipments, further indicating that the frustration typically occurs when shipping papers are inspected by carrier staff and enforcement personnel along the transport chain with respect to the § 172.202(a)(4) requirement to include the "packing group in Roman numerals, as designated for the hazardous material in Column (5) of the § 172.101 table."

The DGAC notes that while § 172.202(a)(4) also exempts organic peroxides, self-reactive substances, and explosives from the requirement to provide a PG as part of the required description, a great deal of confusion is created given that, irrespective of this exception, PGs are provided for these materials in the § 172.101 HMT.

Furthermore, the DGAC also states that the HMR are inconsistent with international regulations, as a PG is not indicated for these materials in their respective hazardous materials (dangerous goods) tables. In addition, those regulations restrict the provision of a PG in the transport document basic description to materials where a PG has been assigned in accordance with classification requirements: Thus, with no PG indicated for these substances in the respective lists, it is inappropriate to provide a PG in the hazardous materials description on a shipping paper under international regulations. Consequently, provision of a PG for domestic transportation would constitute a violation of international regulations for international transportation.

The DGAC states that removing the PG for these materials from the HMT would impose no additional costs and would, in fact, result in a net savings since many unnecessary delays in hazardous material shipments would be avoided. However, the DGAC did not provide a specific figure for the anticipated net savings.

The DGAC also states that the packaging provisions in Part 173 for these materials indicate the level of performance required. Therefore, although certain packagings must meet PG II performance levels, they do not indicate a degree of danger or the variation to PG I or PG III packagings.

In the NPRM, PHMSA proposed to remove the PG II designation from Column (5) of the HMT for organic peroxides (Division 5.2), self-reactive substances (Division 4.1), and explosives (Class 1) as requested in the petition. We agree with the petitioner that, when the PG does not relate to the degree of hazard of the material based on classification criteria but rather is broadly assigned to an entire group of materials for purposes of applying regulatory requirements, there is limited value in requiring an indication of the PG on a shipping paper. PHMSA solicited comment on the safety implications and net benefits of such a change and, as a result, received three comments from ACA, IME, and DGAC in support of the proposed revision. The ACA commented that international harmony is vitally important and will help maintain the exemplary safety

record for the transport of hazardous materials. In its comments, IME stated that in a letter to PHMSA dated June 20, 2012, it supported the petition submitted by DGAC, acknowledging that "IME has encountered enforcement officials' confusion over not showing the packing group on Class 1 shipping papers, as is allowed by regulation. Shipping paper violations can lead to out-of-service orders and have serious consequences to IME members' ability to operate as a motor carrier or hold special permits and approvals." IME noted that its "experience has not changed in the intervening time period, and we continue to support the position advocated by DGAC. We believe that the action being contemplated by PHMSA will eliminate the confusion that is engendered by the current default assignment." IME further commented that the removal of the PG II designation would not result in the incorrect packaging of Class 1 explosives in other than an approved package because of the § 173.60(a) requirement that a packaging used for Class 1 (explosives) materials must meet the PG II requirements. In addition to its supporting comments, IME requested that shippers who currently include the PG designation on shipping papers continue to be able to do so without risk of incurring a violation.

Taking into account the reasons for the removal of the PG II designation from Column (5) of the HMT for organic peroxides, self-reactive substances, and explosives, PHMSA disagrees with IME that shippers should be provided the option of electively indicating a PG on a shipping paper for a HMT entry that is no longer assigned a PG designation. PHMSA believes that allowing this practice would continue to perpetuate confusion and result in the continued frustration of shipments. Further, allowing a PG on a shipping paper for a HMT entry that is not assigned a PG designation for domestic transportation would not be in alignment with, and would continue to constitute a violation of, international regulations for international transportation. For these reasons, we are revising Column (5) of the HMT as proposed in the NPRM without an exception to voluntarily apply the PG II designation on a shipping paper.

Marking Requirements for Poison-by-Inhalation Materials (P-1591)

Air Products and Chemicals, Inc. submitted a petition (P-1591) requesting that PHMSA amend the marking requirements for poison-by-inhalation hazard (PIH) materials that are shipped in accordance with the IMDG Code or Transport Canada's Transportation of Dangerous Goods (TDG) Regulations. Specifically, the petitioner requested that PHMSA modify § 171.23(b)(10)(iv)(A) and (B) to remove the phrase "regardless of the total quantity contained in the transport vehicle or freight container" in both paragraphs to align part 171, subpart C requirements for use of international regulations with the poisonous hazardous material marking requirements in § 172.313(c), which offers exceptions based on Hazard Zone, quantity, and number of distinct materials.

Subpart C of part 171 specifies requirements for shipments offered for transportation or transported in the United States under international regulations. For PIH material, subparagraphs (A) and (B) of § 171.23(b)(10)(iv) require that the transport vehicle or freight container must be marked with the identification numbers for the hazardous material, regardless of the total quantity contained in the transport vehicle or freight container, in the manner specified in § 172.313(c) [*i.e.*, the HMR] and placarded as required by subpart F of part 172. The petitioner stated that the phrase "regardless of the total quantity contained in the transport vehicle or freight container" gives the appearance that the identification number marking requirement is applicable to any quantity, the remainder of the sentence states that the marking must be "in the manner specified in § 172.313(c) of this subchapter," which provides an entirely different requirement.

Section 172.313(c) specifies marking requirements for non-bulk packages of PIH material contained in transport vehicles or freight containers subject to certain provisions and limitations. Section 172.313(c)(2) states, the transport vehicle or freight container is loaded at one facility with 1,000 kg (2,205 pounds) or more aggregate gross weight of the material in non-bulk packages marked with the same proper shipping name and identification number, meaning that unless this criteria is met, marking the identification number on the transport vehicle or freight container is not required. The petitioner indicated that

the inconsistency of §§ 171.23(b)(10)(iv)(A) and (B) and 172.313(c) is a source of confusion.

Air Products and Chemicals, Inc. also identified a potential discrepancy when transporting internationally to or from the United States in accordance with § 171.23, as the requirement to mark all quantities of PIH material is more restrictive and costly than the current marking requirements for the same materials when transported domestically under the HMR in accordance with § 172.313(c). The petitioner points out that under both the IMDG and the TDG there are no additional marking requirements for transport units carrying PIH materials in non-bulk packages similar to the provisions found in § 172.313(c). Therefore, for quantities of PIH materials in non-bulk packages (less than 1,000 kg per UN number), all three regulations are not aligned.

The petitioner states that it has had numerous shipments of PIH materials frustrated because of this confusing requirement and that the additional marking causes economic hardship and transit delays due to additional labor necessary to apply the extra UN identification numbers at the port. Air Products and Chemicals, Inc. provided neither a specific cost figure for these frustrated shipments nor the anticipated net savings of a regulatory change.

In the NPRM, PHMSA stated that the intent of the requirements in § 171.23(b)(10)(iv) is to provide hazard communication for international shipments of PIH materials transiting the United States under either the IMDG Code or the TDG equivalent to those established in the HMR, not to impose more restrictive requirements. The removal of the phrase referring to a "total quantity" will reduce potential confusion due to differences in inspection interpretations, handling costs, and transit time while maintaining an acceptable level of hazard communication for PIH materials. Therefore, PHMSA proposed to amend § 171.23(b)(10)(iv)(A) and (B) by removing the phrase "regardless of the total quantity contained in the transport vehicle or freight container" from each subparagraph.

In the NPRM, PHMSA solicited comment on the safety implications of such a change, as well as the net benefit (*e.g.*, a decrease in the number of frustrated shipments). We received only positive comments on this proposal. Air Products and Chemicals, Inc. supported the proposed change and commented:

The safety of transporting PIH materials will actually be improved with this proposed

regulation change. The effectiveness of hazard communication will not be reduced as the current UN marking requirement (for all quantities) provides no additional benefit from a hazard communication or emergency response perspective. What we do see is elimination of confusion and a requirement that would be much more consistent with the IMDG and TDG regulations, as well. We understand the importance of consistency between the regulations. Consistency goes a long way in eliminating confusion, especially in an emergency response situation when effective accurate communication is extremely important. The display of UN ID numbers on a transport vehicle for small individual quantities falsely gives the impression that there are large amounts of the hazardous material. In an Emergency Response situation, it is not wise to cause reactions that are based on a representation of a large quantity, when in fact, there is no large quantity. Effective emergency response is based both on knowledge of the hazards and knowledge of the quantity. The more consistency we have for hazard communication processes, the better.

The DGAC also supported the proposed change and commented:

This revision will eliminate confusion between the requirements for domestic shipments and international shipments. In addition, this revision is consistent with the goal to harmonize domestic regulations with the international requirements.

For these reasons, we are revising § 171.23(b)(10)(iv)(A) and (B) as proposed in the January 23, 2015 NPRM.

Emergency Response Telephone Number (P-1597)

The DGAC submitted a petition (P-1597) requesting that PHMSA amend the emergency response telephone number requirements to prohibit the use of alphanumeric telephone numbers and only permit numeric telephone numbers since, currently, the HMR does not specifically limit the telephone numbers to be numeric under § 172.604(a). The DGAC stated that although telephone faces historically associated integers with letters (*e.g.*, 2^{ABC}), this is no longer the case in all instances. As a result, emergency response telephone numbers presented alphanumerically could cause undesirable delays in acquiring emergency response information in time-sensitive situations as the first responder would have to first convert letters to numbers.

The DGAC further noted that PHMSA issued a letter of interpretation (Ref. No. 04-0032) confirming that alphanumeric presentation of an emergency response telephone number was acceptable but expressing concern about the delays it may cause.

In the NPRM, PHMSA proposed the revision to § 172.604(a) as outlined in

the petition and noted that the continued use of alphanumeric telephone numbers could cause unnecessary delays in emergency response situations. Additionally, PHMSA solicited comment on the cost implications of the proposed revision and, as a result, received four comments from AAR, ACA, ATA, and DGAC in support of this revision. The ATA commented that this revision will decrease chances of death or injury to transporters and emergency responders and that any minimal costs associated with transposing a number from its corresponding letter will be more than outweighed by the safety benefits. The ATA also noted that this revision will be beneficial to both non-English speakers and those unfamiliar with the traditional correspondence between numbers and letters on a telephone keypad. For these reasons, in this final rule we are revising § 172.604(a) as proposed in the January 23, 2015 NPRM.

Packaging Requirements for Nitric Acid (P-1601)

The UPS submitted a petition (P-1601) requesting that PHMSA revise the packaging requirements for ground shipments of nitric acid basing the petition on four loading and sorting operation incidents that occurred over a six-month period. The incidents did not result in any casualties, but varying degrees of property damage were assessed in each situation. The UPS noted that each incident involved the same packaging configuration—glass inner packagings within fiberboard outer packagings—and in each case, a breach of one or more inner packagings caused leakage, resulting in fumes, followed by the initiation of a fire involving the fiberboard outer packaging material. The UPS believes that the packaging requirements of the HMR applicable to ground shipments of nitric acid do not adequately address the hazards present.

As provided in § 173.158, packaging for ground shipments of nitric acid prescribe either outer packaging that is not reactive to contents or a combination packaging that includes non-reactive intermediate packaging and absorbent material. However, for concentrations of less than 90 percent nitric acid, the HMR permits the use of glass inner packagings of less than 2.5 L placed inside UN Specification 4G, 4C1, 4C2, 4D, or 4F outer packagings. This latter configuration is associated with the four incidents referenced by UPS in its petition for rulemaking.

The UPS proposed that PHMSA change § 173.158(e) to enhance the

packaging requirements applicable to nitric acid in concentrations less than 90 percent. Under the proposal in P-1601, when in wooden or fiberboard outer packaging, glass inner packagings used in the configuration prescribed in § 173.158(e) would be required to be packed in tightly-closed, non-reactive intermediate packagings and cushioned with a non-reactive absorbent material. The UPS feels that the addition of this intermediate packaging would properly address the hazards present in this concentration of nitric acid and would have prevented the above incidents from occurring.

In the NPRM, PHMSA proposed to require in § 173.158(e) that when nitric acid, in concentrations less than 90 percent, is placed in glass inner packagings to be packaged in wooden or fiberboard outer packaging, the glass inner packagings must be packed in tightly-closed, non-reactive intermediate packagings and cushioned with a non-reactive absorbent material. In addition, PHMSA solicited comment on whether or not the proposed packaging should be applied to other similar materials as well as on cost burdens from the increase in packaging requirements. PHMSA received four comments from ATA, James Scott, UPS, and Veolia in support of the proposed revision. Veolia commented that it is company policy to place the inner 2.5 L glass bottles in a poly pail intermediate packaging or the outer container must include a leak-proof poly liner, further stating that they have implemented the use of the additional intermediate packages as an additional precautionary safety measure to contain leaking nitric acid, should the inner glass bottle fail. After implementing these packaging procedures, Veolia has not had any incidents of leaking nitric acid initiating a fire, of fumes, or of leaking material breaching the outer packaging. James Scott commented that this packaging requirement would be a cost burden for companies that still pack nitric acid in glass and further noted that the addition of intermediate packagings and absorbent material may require current combination packagings to be modified. Mr. Scott suggested that this impact can be minimized if flexible intermediate packagings are allowed and that the word “rigid” should not appear as part of the requirement.

PHMSA received only positive comments on this proposal. As proposed in the NPRM, the revised § 173.158(e) requires that when placed in wooden or fiberboard outer packagings, the glass inner packagings must be packed in tightly-closed, non-reactive intermediate packagings,

cushioned with a non-reactive absorbent material. The use of a flexible intermediate packaging is authorized, provided it can be tightly-closed and is non-reactive to the nitric acid. A “rigid” intermediate packaging was not proposed. Therefore, in this final rule, PHMSA is adopting the revision to § 173.158(e) as proposed in the January 23, 2015 NPRM. PHMSA notes that we did not receive any comments in response to the NPRM solicitation asking that proposed packaging be applied to any other specific hazardous materials and therefore, we are limiting the revision to nitric acid as proposed.

Pressure Test and Internal Visual Inspection Requirements for MC 331 Cargo Tanks (P-1604)

The NPGA submitted a petition (P-1604) requesting that PHMSA modify the pressure test and visual inspection test requirements applicable to certain MC 331 specification cargo tanks in dedicated propane delivery service, commonly known as bobtails, found in § 180.407(c). Currently, the HMR requires periodic pressure testing and visual inspection every five years to remain in service; however, the NPGA petitions PHMSA to extend the requalification period for certain MC 331 cargo tanks from five years to ten years and provides a technical case for this change.

The NPGA states in its petition that the five-year requalification period for bobtails is a burden to the propane industry further stating that these cargo tanks must be taken out of service for a period of up to a week and that water is introduced into the tank during the requalification process, which can be detrimental to both the tank and the contents. Before a tank can be returned to service, it must be completely free of any water. The NPGA states that this removal from service hinders a propane company's operations.

In 2001, the NPGA conducted a survey to determine whether companies that performed the five-year hydrostatic test requirement had experienced any failures. None of the 203 survey respondents reported a hydrostatic test failure for tanks of less than 3,500 gallons water capacity. Based on the results of this survey, the NPGA sponsored a study by the Battelle Memorial Institute (Battelle), a non-profit research and development organization, to determine whether a change to the requalification period would be technically feasible. Battelle developed crack growth models to estimate the time to failure of a tank that has undergone several pressure cycles. They also analyzed effects on the MC

331 cargo tank under the delivery service load conditions to determine the estimated life of the tank.

Based on the results of this study, the NPGA and Battelle recommend that PHMSA modify the requalification period from five years to ten years for MC 331 cargo tanks that: (1) Are used in dedicated propane service; (2) have a water capacity less than 3,500 gallons; and (3) are constructed of non-quenched and tempered (NQT) SA-612 steel and NQT SA-202 or SA-455 steels, provided the materials have full-size equivalent (FSE) Charpy Vee notch energy test data that demonstrates 75 percent shear-area ductility at 32 °F with an average of three (3) or more samples greater than 15 ft-lb FSE, and none with less than 10 ft-lb FSE. A copy of this study is in the docket for this rulemaking.

After considering the NPGA survey results, which cite no reported incidents, and the study commissioned by the NPGA, PHMSA determined that the petition merited consideration of a rulemaking change. The NPGA notes there is a strong safety record amongst its members regarding this issue and the cost savings to the industry would be significant. The NPGA commented in support of the proposed revision to the requalification requirements for MC 331 or bobtail cargo tanks and provided cost estimates as requested by PHMSA. They provide that requalification pressure tests can cost as much as \$3,000 when factoring in the downtime of the bobtail as well as the labor and fuel required to drive it to the testing shop or facility. In addition, the NPGA estimates that there are approximately 18,000 bobtails in service that would be eligible for the extension to the requalification period. This represents a total industry cost of about \$54 million to requalify these vehicles by hydrostatic test. If the proposed requirements are extended to ten years, it would reduce the industry's costs by half, resulting in approximately \$5.4 million on an annual basis.

PHMSA received one anonymous comment concerning the provisions in Note 5 to the § 180.407(c) table. In addition to MC 331 cargo tanks constructed of nonquenched and tempered NQT SA-612 steel, Note 5 authorizes a ten-year inspection interval period applicable to cargo tanks constructed of NQT SA-202 or NQT SA-455 steel. This ten year interval applies if the materials have full-size equivalent (FSE) Charpy vee notch (CVN) energy test data that demonstrated 75 percent shear-area ductility at 32 °F with an average of three (3) or more samples greater than 15 ft-lb FSE with no sample less than 10

ft-lb FSE. The commenter states that Note 5 contains very specific information that is not available to most cargo tank owners or enforcement personnel. As such, the commenter states that there will be no way to determine that the cargo tank satisfies the Note 5 requirements on the roadside or at the cargo tanks owner's place of business without the paperwork to verify compliance. The commenter also states that PHMSA needs to make clear that if a cargo tank owner cannot document this information, then the cargo tank is not eligible for the ten-year requalification period and would be subject to a five-year requalification interval.

PHMSA agrees that if a cargo tank owner cannot produce documentation that a MC 331 cargo tank meets the requirements for a ten-year requalification interval, they are subject to the five-year requalification interval. Section 178.337-2(a)(3) requires that a MC 331 fabricator shall record the heat, and slab numbers, as well as the certified Charpy impact values where required, of each plate used in each cargo tank on a sketch showing the location of each plate in the shell and heads of the cargo tank. Copies of each sketch shall be provided to the owner, retained for at least five years by the fabricator, and made available to duly identified representatives of the Department of Transportation. PHMSA received no other comments on this issue and therefore, we are adopting as proposed to revise the pressure test and internal visual inspection requirements found in § 180.407(c) for certain MC 331 specification cargo tanks from a five-year requalification period to a ten-year period.

Mobile Acetylene Trailer Systems (P-1605) and NTSB Safety Recommendations H-09-01 and H-09-02

The CGA submitted a petition (P-1605) requesting that PHMSA amend the HMR to incorporate a reference to CGA G-1.6-2011, *Standard for Mobile Acetylene Trailer Systems*, Seventh Edition, copyright 2011. This standard provides minimum requirements necessary for the design, construction, and operation of mobile acetylene trailer systems, which consist of acetylene cylinders mounted and manifolded for the purposes of charging, transporting, and discharging acetylene. It also covers ground-mounted auxiliary equipment used with mobile acetylene trailers such as piping, meters, regulators, flash arrestors, and fire protection equipment.

This petition coincides with two NTSB recommendations (H-09-01 and

H-09-02) issued to PHMSA based on incidents involving mobile acetylene trailers.¹ In response to the petition and recommendations, PHMSA determined that it would consider a rulemaking change. Further detailed discussion of this issue can be found in the Section-by-Section Review for § 173.301.

Pressure Relief Devices for Cargo Tanks (P-1609)

The TTMA submitted a petition (P-1609) requesting that PHMSA amend the requirements of § 180.407 applicable to pressure relief devices (PRDs). Specifically, TTMA requests that PHMSA revise the HMR to more clearly establish the set pressure of a PRD for each of the DOT specification cargo tank motor vehicles. The TTMA states that the wording of § 180.407(d)(3) and (g)(1)(ii), applicable to the testing requirements for PRDs, creates issues for persons performing the testing.

The TTMA points out two specific issues with these paragraphs: The first is the term "set-to-discharge." On April 9, 2009, PHMSA published a final rule [Docket No. PHMSA-2006-25910 (HM-218E); 74 FR 16135; effective May 11, 2009], where in an attempt to harmonize with international standards, PHMSA replaced the phrase "set-to-discharge" with "start-to-discharge." The TTMA explains that this is an issue because the discharge pressure referenced is used to figure the minimum pressure at which the PRD should reseal. By changing the wording from "set" to "start," the reseating pressure changed from a design requirement to one based on what a given vent actually does under test. Therefore, instead of testing a PRD knowing its reseating requirements, testers must perform the test of a given PRD, calculate the reseating pressure of that particular PRD, and then, retest from that pressure. Essentially, testers of PRDs could test identical products at different pressures because the reseal pressure is no longer a fixed design requirement. This creates inconsistencies between the reseating pressures of comparable PRDs authorized for identical hazardous materials service. The TTMA states that this change compromises safety, instead of promoting it.

The second issue TTMA points out in its petition is in regards to the term "the required set pressure." This term is problematic in relation to the continuing operation of existing cargo tanks made to older specifications in § 180.405(c). As the codes for the older

¹ http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/NTSB%20Files/H_09_1_2_Original.pdf

specifications of cargo tanks are no longer published, determining “the required set pressure” is problematic. This is an issue for current specifications of cargo tanks as well. There are pressure allowances during the retesting of pressure relief devices of no more than 110 percent of the required set pressure (§ 180.407(d)(3)) and the same 10 percent allowance for DOT-400 series cargo tanks (§ 178.345-10(d)) creates confusion for current specification cargo tanks. The TTMA believes this will create an unsafe condition for tanks, as a PRD is no longer functioning as designed by the manufacturer; thus the PRD may actually open at higher pressures (near a cargo tank’s test pressure) as opposed to the appropriate lower design pressure.

The TTMA petitioned that PHMSA revise the HMR for testing of PRDs by replacing the current requirements found in § 180.407(d)(3) and (g)(1)(ii) with a reference to a new paragraph (j) that would detail the PRD test requirements. The TTMA believes this change will eliminate confusion for testers by clarifying the requirements for opening and reseating pressures when beginning the tests, while simultaneously enhancing the enforcement of these requirements by creating consistency in the testing requirements for cargo tank PRDs of the same design.

PHMSA determined that TTMA’s petition merited consideration of a rulemaking change based on the need for consistent and clear testing requirements for PRDs on DOT specification cargo tanks, and as a result, PHMSA received five comments in support of the proposed revision. Girard Equipment, Inc., TTMA, Mr. Peter Weis, Betts Industries Inc., and Dow Chemical Company commented in support of the amendment. One anonymous commenter believed the proposed amendment is not in the best interest of safety, stating that the revision will allow for PRDs intended for the DOT-400 series of cargo tanks to be installed on DOT-300 series cargo tanks, therefore opening at well over the maximum allowable working pressure (MAWP) of the DOT-300 series. The TTMA responded to this commenter in a follow-up comment stating that the anonymous commenter is incorrect, further stating that the proposed amendment keeps PRDs on upgraded DOT-300 series cargo tanks functioning according to the requirements for DOT-400 series cargo tanks and that this represents an improvement in safety, which is why they are required on current construction and why provision

is made for upgrading older construction tanks. Due to the overwhelming support to TTMA’s petition and the NPRM, PHMSA is adopting the revisions to both § 180.407(d)(3) and (g)(1) as proposed to reference a new paragraph (j), which will outline the testing requirements applicable to PRDs.

Application for Designation as a Certification Agency

An anonymous commenter stated that § 107.402(f) incorrectly cites the requirements for inspection and test marking in § 180.605(k) and further suggests that § 107.402(f) should cite the pressure test procedures in § 180.605(h). PHMSA disagrees, believing instead that § 107.402(f) should be revised to correctly reference Approval of Specification UN Portable Tanks, which would be consistent with § 107.402(f)(2). Therefore, in this final rule, PHMSA will revise § 107.402(f) to reference § 178.273 instead of § 180.605(k).

B. Provisions Not Adopted in This Final Rule

Based on an assessment of the proposed changes and the comments received, PHMSA identified four provisions that we are not adopting in this final rule: (1) The incorporation by reference into § 171.7 of the proposed edition of the Association of American Railroads (AAR) *Manual of Standards and Recommended Practices, Section C-III, Specifications for Tank Cars, Specification M-1002* (Specifications for Tank Cars); (2) the revision to the forbidden material requirements in § 173.21(e); (3) the odorization of cylinders and certain cargo tanks containing liquefied petroleum gas (LPG); and (4) the revision to the definition of “person” in § 180.401. Below is a summary of the amendments proposed, the comments received, and PHMSA’s rationale for not adopting these proposed amendments.

Incorporation by Reference of AAR Specifications for Tank Cars (M-1002)

The National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272) directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. Section 171.7 lists all standards incorporated by reference into the HMR and informational materials not requiring incorporation by reference. One particular incorporation by reference is the AAR’s *Specifications for Tank Cars*, October 2000 edition for various tank

car design, manufacture, inspection and testing, and qualification regulations set forth in parts 173, 179, and 180 of the HMR. As currently incorporated by reference, all sections refer to the October 2000 edition of this document.

AAR frequently updates the specifications for tank cars; however, PHMSA has not formally received a petition for rulemaking to revise the HMR to reflect more current versions of the AAR Specifications for Tank Cars.

In the NPRM, we proposed to revise the incorporation by reference for this document to include the 2007 edition of the AAR Specifications for Tank Cars and certain subsequent amendments. PHMSA also proposed to revise § 179.24(a)(2) to remove the reference to the December 2000 edition of this document and instead replace it with a generic reference to the AAR Specifications for Tank Cars. Additionally, we proposed to revise § 180.503 to replace the reference to the “AAR Tank Car Manual” with “AAR Specifications for Tank Cars” for consistency with references to this document elsewhere in the HMR. PHMSA also notes that the FRA had reviewed the 2007 standard and the subsequent amendments and determined not to incorporate the 2007 standard in its totality.

PHMSA received three negative comments to this direct proposal for incorporation by reference. The Chlorine Institute (CI) commented that it is PHMSA’s assertion that FRA does not support certain amendments of a given chapter or appendix [of the Specifications for Tank Cars] due to “safety concerns,” furthermore stating that those concerns should be explained in the rulemaking. If FRA has determined that specific standards or practices are unsafe, CI questions if it should be required to comply with a different version of the M-1002 Tank Car Manual, per AAR requirements, as opposed to simply complying with what is currently in the HMR. The AAR requests that the final rule include the latest edition of the AAR Specification for Tank Cars that was published in November 2014 and that PHMSA provide it with a list of these “safety concerns” in reference to the AAR Specifications for Tank Cars. Moving forward AAR strongly supports working together with PHMSA and FRA on a scheduled implementation plan to evaluate and incorporate amendments made by the AAR to the incorporation by reference of the AAR Specifications for Tank Cars. Dow Chemical Company had concerns with PHMSA’s approach and believes the HMR should simply incorporate by reference the most

current version of the AAR Specifications for Tank Cars. They go on to state that referencing certain previous amendments of older versions of the standards into the HMR will cause confusion and unnecessary burden. If, as PHMSA states in the NPRM, the FRA does not support specific current AAR standards or practices and deems them unsafe, then Dow Chemical Company believes those “safety concerns” should further be explained.

After consideration of the comments received, PHMSA in consultation with FRA agrees with commenters and will not adopt the incorporation by reference as proposed. PHMSA and FRA agree that the safety concerns raised by FRA are not adequately explained and that a more current version of the AAR Specifications for Tank Cars is available and thus good cause reasons exist for not adopting the proposed amendment. The FRA will continue to evaluate amendments made to the AAR Specifications for Tank Cars and will update the effective dates for referenced chapters or appendices, as appropriate, when such amendments are supported by FRA. PHMSA and FRA agree with AAR that future collaborative efforts to update both the AAR Specifications for Tank Cars and the corresponding incorporation by reference into the HMR would be beneficial to stakeholders.

PHMSA further notes that we received a negative joint comment from PublicResource.org and Greenpeace regarding our general practice of incorporating by reference. They did not comment on the substantive merits of the proposed rule. Instead, they ask PHMSA to recognize that it has acted illegally and arbitrarily at the NPRM stage in not making the standards—which are integral parts of the rule—available to the public for review without having to pay for them. They go on to state that the unwarranted action by PHMSA places an unreasonable burden on members of the public who wish to review the entire rule in order to fully understand it and to make appropriate comments. PHMSA disagrees with the basis for the joint comment as we have complied with the requirements in 1 CFR part 51 for incorporation by reference. However, as discussed above, we are not adopting the revision to the incorporation by reference of the AAR Specifications for Tank Cars as proposed.

It is noted that the editorial revisions to §§ 179.24(a)(2) and 180.503 are being adopted as proposed as clarifying amendments.

Prohibition of Materials in the Same Transport Vehicle

Section 173.21 outlines forbidden materials and packages, with paragraph (e) of this section forbidding the transport of a material in the same packaging, freight container, or overpack with another material, that if mixed would likely cause a dangerous evolution of heat, flammable or poisonous gases or vapors, or the production of corrosive materials. While this prohibition prevents incidents from occurring within a freight container, overpack, or the same container, there is no prohibition on this type within a transport vehicle (e.g., a truck with single trailer).

In May 2013, PHMSA received a request for a letter of interpretation (Ref. No. 13–0111) describing a potentially dangerous situation whereby a company offers for transportation “UN1908, Chlorite Solution, Class 8, Packing Group (PG) II,” “UN1791, Hypochlorite Solutions, Class 8, PG III” and “UN1789, Hydrochloric Acid Solution, Class 8, PG II” in separate intermediate bulk containers (IBCs) in the same transport vehicle. While there are no formal segregation requirements per § 177.848 of the HMR, data accompanying the letter indicated that in the event of co-mingling, these materials would create chlorine dioxide gas. “Chlorine dioxide (not hydrate)” is forbidden for transportation per the § 172.101 HMT. Thus, the transportation of these materials in the same transport vehicle would create a situation where the mixing of the materials would produce a poisonous gas and highly corrosive material, which happens to also be forbidden from transport; yet, under the current construct of § 173.21, there is no prohibition against this transport scenario.

In the NPRM, PHMSA proposed to prohibit the transportation or offering for transportation of materials in the same transport vehicle (e.g., a trailer, a rail car) with another material that is likely to cause a dangerous evolution of heat, flammable or poisonous gases or vapors, or produce corrosive materials upon mixing for both rail and highway transport.

PHMSA received 13 comments on the proposed amendment from AAR, ACC, ATA, CI, COSTHA, DGAC, IME, Jones Chemical, NACD, RIPA, UPS, USWAG, and Veolia. All of the comments strongly opposed the proposed amendment. The commenters addressed topics related to the proposed amendment such as the difficulty in implementing the prohibition; the impact on shipper and carrier

operations; the economic implications; and the safety benefit, or lack thereof. An overview of these comments is provided below, and the complete list of comments pertaining to this amendment is available in the docket for this rulemaking.

The majority of commenters stated that carriers, offerors, and other hazardous materials employees typically have neither sufficient information available nor the technical expertise to make the assessments necessary to comply with the proposed amendment. As such, a carrier cannot be expected to identify and evaluate each individual package consigned for carriage to determine whether the materials in those packages would be compatible with each other in the unlikely event they were to be unintentionally mixed. Further, shippers cannot possibly know what other packaged materials will be transported in the vehicle carrying their products and cannot be expected to determine whether any of the materials onboard the vehicle, if inadvertently mixed, would create a hazard. The DGAC commented that this prohibition would apply not only to materials identified as hazardous materials, but also to non-hazardous materials.

The majority of commenters stated that the proposed prohibitions would result in increased costs as offerors and carriers would need to further segregate hazardous materials, thus creating the need for separate trucks to carry materials presently authorized for carriage in a single truck. Several of the commenters indicated that this would increase highway traffic as well as the probability of highway accidents. Veolia commented that many of their customers generate waste materials that would be deemed to be incompatible for shipment together if this new restriction is adopted further stating that this would result in the need to ship the wastes off-site for disposal using more than one transport vehicle to accommodate the proposed restrictions. Another commenter, NACD, notes there would be an increase in distributor costs, as distributors would need to purchase more trucks to increase their fleets.

Several commenters stated their belief that the segregation provisions of § 177.848 already sufficiently address the danger associated with co-loading incompatible materials and that these provisions have a proven and long-standing safety record. COSTHA commented that the § 177.848 segregation table clearly indicates when certain hazard classes or divisions are known to react dangerously and,

therefore, when they must be segregated. COSTHA further noted that the segregation table was developed on the basis that the current classification system is an adequate and appropriate manner to classify materials. Furthermore, Veolia pointed out PHMSA's own words in letter Ref. No. 13-0111: "[w]e recognize the concerns that you have regarding the transport of Chlorite and Hypochlorite Solutions with Hydrochloric Acid in the same transport vehicle. However, we believe that the packaging requirements for these materials mitigate the potential for comingling and subsequent dangerous evolution of gas."

Based on the comments received, PHMSA will not be adopting any changes to the forbidden materials provisions specified in § 173.21(e). It was not PHMSA's intent to propose an amendment that would impose a significant operational and economic burden on the regulated community; rather PHMSA's intention was to address a safety issue identified through a request for a letter of interpretation. Based on further review and the rationale presented by commenters, PHMSA believes the current packaging and segregation requirements adequately address the unlikely scenario of a dangerous situation caused by the unintentional and unlikely mixing of materials during transport.

Odorization of Cylinders and Certain Cargo Tanks Containing Liquefied Petroleum Gas (LPG)

Section 172.304a prescribes the filling requirements for cylinders containing compressed gases. In the NPRM, PHMSA proposed to add new § 173.304a(d)(5) in addition to the proposed revised text in §§ 173.314(h) and 173.315(b)(1) that addresses the odorization of LPG in rail tank car tanks and cargo tanks, respectively. We also proposed to revise the existing § 173.315(b)(1) to add a performance standard to address the issues of "under-odorization" and "odor fade." PHMSA received comments from the NPGA in opposition to extending the odorization standards proposed to cylinders and revision of the requirement to cargo tanks. They state that, while it may seem intuitive to simply apply the requirements to these additional containers, PHMSA was unaware of the impact this will have on retail propane marketers further downstream in the distribution chain, and as proposed, they believe the requirement would place an undue burden on retail propane marketers, particularly for the more than 90

percent of NPGA members designated as small businesses.

On June 26, 2015, PHMSA met with representatives of NPGA and their membership, as well as the National Association of State Fire Marshalls (NASFM) to discuss the odorization provisions in the NPRM. In this meeting, NPGA and NASFM outlined in further detail their concerns with the proposed requirements. The NPGA reiterated the downstream consequences of the proposed requirement to fillers, distributors, and sellers of cylinders and smaller cargo tanks under 3,500 gallons capacity (previously mentioned as "bobtails"). As stated in their comment, NPGA provides cost information associated with the proposed requirements, estimating that with 200,000 cylinder fillings daily, quantitative testing requirements for cylinders would likely exceed \$480 million per year to the industry. Bobtails that experience high turnover (three to five fills per day) would be subject to the proposed odorant performance standard as well. These distributors of propane do not have the odorant chemical (ethyl mercaptan) on site, nor the trained personnel and experience to comply with the proposed requirement. They went on to state that applying the requirement to rail tank cars is the most effective means of addressing odorant fade as it is the furthest upstream transportation. If a rail tank car is effectively odorized, all movement downstream would meet the odorant requirements and presumably not fade. The NASFM commented in the meeting in support of NPGA on this issue. Furthermore, the NPGA claimed that odorant fade is most likely to occur in mixed-use rail tank cars as they are not used in "dedicated service" and are cleaned prior to filling with propane. Meanwhile, bobtails and bulk storage tanks are in "dedicated service" so they experience less odorant fade due to being "seasoned"—*i.e.*, there is less absorption of odorant into the tank walls and, thus, more odorant remains mixed with the LPG.

In the meeting, the NPGA stated that the National Fire Protection Association (NFPA) already requires a "sniff-test" for odorized LPG and provided cost information on the existing "sniff test." While this test is not in the HMR, the cost data provided by NPGA estimates an annual total of \$9 million to the industry. The NPGA cost information, as well as the meeting notes can be found in the docket for this rulemaking.

PHMSA recognizes the NPGA's concerns and does not intend to place an undue economic burden on retail distributors of LPG. With an

understanding of the propane industry's supply chain, we hope to address odorization further up the transportation stream to avoid odorant fade or under-odorization occurring downstream. It is not our intent to require retail distributors offering for transport or transporting propane from their bulk storage facilities to end users in cylinders or bobtail cargo tanks to qualitatively test odorant levels in the LPG. Instead, our goal with the revisions adopted would be to require this testing for larger packages of LPG (rail tank cars or certain cargo tanks) from a refinery, gas plant, or pipeline terminal destined for those retail distributors. While provisions requiring odorization and measures to address odorant fade or under-odorization for cylinders, cargo tanks, or portable tanks not originating from a refinery, gas plant, or pipeline terminal are not being adopted in this rule, amendments addressing rail tank cars and other point-of-origin transportation are discussed further in the preamble.

Applicability of the Word "person" § 180.401

In the NPRM, PHMSA proposed to revise the term "person" to "hazardous materials employee or hazardous materials employer." The proposed revision was an attempt to clarify that subpart E of part 180 qualification and maintenance of cargo tank requirements applies not only to persons offering hazardous materials for transportation or transporting a hazardous material, but also to those involved with qualification, maintenance, or periodic testing of cargo tanks. PHMSA received an anonymous comment pointing out that the proposed revision is unnecessary because the definition for "person" in § 171.8 already applies to a person that designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container, or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce. We agree with the commenter that the definition for "person" in § 171.8 already adequately and accurately addresses the applicability of subpart E of part 180. Therefore, PHMSA will not be adopting the proposed revision to § 180.401.

Reference to the Manufacturer's Report Requirements in § 178.65(i)(1)

In the NPRM, we proposed to revise § 178.65(i)(1) to correctly reference the manufacturer's report requirements in § 178.35(g). A final rule published July 20, 2011 [Docket No. PHMSA-2009-

0151 (HM-218F)] removed paragraph (h) and moved the manufacturer's report retention requirements into paragraph (g). Although PHMSA did not receive any comments on this proposed revision, PHMSA did identify a letter of interpretation (Ref No. 01-0125) that noted an error in what is referenced in § 178.65(i)(1). In the letter, PHMSA agreed that § 178.65(i)(1) should include an exception from the marking requirements provided in § 178.35(f), not the manufacturer's report requirements in paragraph (h) (and subsequently paragraph (g)), and noted that it warranted a rulemaking change. In light of the letter of interpretation, PHMSA believes that further review is needed to determine the full intent of the exception provided in § 178.65(i)(1). Thus, PHMSA will not be adopting the revision to § 178.65(i)(1) as proposed.

C. Comments Outside the Scope of This Rulemaking

PHMSA received eighteen (18) comments that were either outside the scope of the proposed rulemaking or not specifically addressing the proposed regulatory changes. Mr. Adrian Mendoza generally supported PHMSA's rulemaking efforts in the interest of public health and safety. Mr. Aaron Adamczyk submitted a list of materials to be incorporated by reference but did not respond directly to any provisions in the NPRM. An anonymous commenter stated that the issue that caused the revision proposed in §§ 173.170 and 173.171 is also found in § 173.6 for materials of trade, and the term "motor vehicle," which includes both the truck and trailer, limits the exception; the commenter further requested that we consider changing the term "motor vehicle" to "transport vehicle" to allow the materials of trade exception to apply to each unit. While PHMSA finds value in this comment, we did not propose this revision and therefore will not adopt the commenter's suggestion.

Another anonymous commenter stated that the definitions of cargo tank in §§ 171.8 and 178.320 do not match and further requests revising the definition in § 171.8 to be consistent with the definition in § 178.320, which includes solids and semi-solids. This revision was also not proposed in the NPRM, and therefore, PHMSA is not adopting the change.

The remaining fourteen (14) comments addressed our August 1, 2014, "Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains (HM-251)," proposed rule. That rulemaking covered several key issues related to the safe

transport of crude oil and other flammable liquids by rail and its comment period closed on September 30, 2014 under Docket No. PHMSA-2012-0082. As these issues raised by commenters under the docket for HM-218H were not proposed in HM-218H, PHMSA will not address the comments in this final rule and consider the comments as outside the scope of the rulemaking.

IV. Section-by-Section Review

Part 107

Section 107.402

Section 107.402 sets forth the application requirements for designation as a certification agency to issue certificates and certifications for packagings designed, manufactured, tested, or maintained in conformance with the HMR and standards set forth in the UN Model Regulations. This section also sets forth the application requirements for designation as a certification agency to issue certificates and certifications for lighters, portable tanks, multi-element gas containers, and Division 1.4G consumer fireworks.

PHMSA is revising § 107.402(d)(1)(i) to indicate that a fireworks certification agency applicant must be a U.S. resident or, for a non-U.S. resident, must have a designated U.S. agent representative as specified in § 105.40. The criteria for fireworks certification agencies were added to the HMR in a final rule published April 2, 2015 [Docket No. PHMSA-2010-0320 (HM-257); 78 FR 42457]. PHMSA intended for § 107.402(d)(1)(i) to correspond with the requirements of § 105.40, which specifies designated agents for non-residents; however, the term "citizen" was inadvertently substituted for "resident," thus PHMSA is revising § 107.402(d)(1)(i) by replacing the term "citizen" with the term "resident."

PHMSA is also revising § 107.402(e) to require that a lighter certification agency submit a statement to the Associate Administrator explaining that the agency is independent of and not owned by a lighter manufacturer, distributor, import or export company, or proprietorship. Further, we are revising § 107.402(f) to require that a portable tank and MEGC certification agency submit a statement to the Associate Administrator indicating that the agency is independent of and not owned by a portable tank or MEGC manufacturer, owner, or distributor. This language was included in § 107.402 and pertained to all certification agencies, but it was removed inadvertently as a result of changes

made to the HMR in rulemaking HM-257.

Section 107.402(f) sets forth the requirements for portable tank and MEGC certification agencies prior to inspecting for compliance with the HMR. PHMSA is revising § 107.402(f) to reference Approval of Specification Portable Tanks as provided in § 178.273, rather than § 180.605(k). This would be consistent with § 107.402(f)(2).

Section 107.807

Section 107.807 sets forth the requirements for authorizing chemical analyses and tests for non-domestic manufacturers of DOT specification or special permit cylinders. To maintain consistency with requirements of other independent inspection agencies, PHMSA is revising § 107.807(b)(3) to require that the agency submit a statement indicating that the inspection agency is independent of and not owned by a cylinder manufacturer, owner, or distributor.

Part 171

Section 171.7

As previously stated, the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272) directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. Section 171.7 lists all standards incorporated by reference into the HMR and informational materials not requiring incorporation by reference. The informational materials not requiring incorporation by reference are noted throughout the HMR and provide best practices and additional safety measures that, while not mandatory, may enhance safety and compliance. Table 1 in § 171.7 lists informational materials that are not incorporated by reference. In a final rule published on January 28, 2008 [Docket No. 2005-21812 (HM-218D); 73 FR 4699, effective October 1, 2008], PHMSA added in Table 1 (formerly paragraph (b) of the section) an entry for the CGA publication, CGA C-1.1, *Personnel Training and Certification Guidelines for Cylinder Requalification by the Volumetric Expansion Method*. Following the publication of HM-218D, PHMSA received an appeal from Hydro-Test Products, Inc. (PHMSA-2005-21812-0025) asking us to either remove the reference to CGA C-1.1 or add examples of other training materials that may be used. Hydro-Test noted that referencing only the CGA publication in the HMR could suggest that other training materials are not acceptable.

PHMSA added CGA C-1.1 as an example of guidance material that may be used to assist requalifiers in creating their cylinder training procedures and recordkeeping requirements. The publication is not a standalone tool for training persons on how to perform requalification of cylinders using the volumetric expansion test method. To alleviate confusion for cylinder requalifiers, PHMSA intended to remove the reference to CGA C-1.1 in §§ 171.7 and 180.205 in a previous editorial final rule published on October 1, 2008 [Docket No. PHMSA-2008-0227 (HM-244A); 73 FR 57001, effective October 1, 2008]. However, PHMSA removed reference to the document only in § 180.205(g)(6) and inadvertently failed to remove the reference in § 171.7. In this final rule, PHMSA is amending Table 1 to § 171.7 by removing the entry for CGA C-1.1 to align the regulatory text with previous rulemaking actions.

Additionally, as described in the Comment Discussion for petition for rulemaking P-1605 and more fully discussed in the Section-by-Section Review for § 173.301, PHMSA is amending the HMR to incorporate by reference CGA G-1.6-2011, *Standard for Mobile Acetylene Trailer Systems*, Seventh Edition, copyright 2011.

Section 171.7(k) incorporates The *AAR Manual of Standards and Recommended Practices, Section C—Part III, Specifications for Tank Cars, Specification M-1002, (AAR Specifications for Tank Cars), December 2000*. This standard prescribes approval requirements, general design and test requirements, structural requirements, valves and fittings, marking, recommended maintenance practice, and certification of tank car facilities. In this final rule, PHMSA is amending paragraph (k) of this section to list sections §§ 179.24 and 180.503 that reference this standard but were inadvertently omitted in a final rule published June 25, 2012 [Docket No. PHMSA-2010-0018 (HM-216B); 77 FR 37961].

Section 171.22

In a May 3, 2007 final rule [Docket No. PHMSA-2005-23141 (HM-215F); 72 FR 25162], the importer responsibility requirements were transitioned from § 171.12(a) to § 171.22(f). When transitioning the requirement that a person importing a hazardous material into the United States must provide the shipper and forwarding agent with information required under the HMR, the shipper notification was inadvertently omitted. As a result, only the forwarding agent is presently required to be provided with

information as to the requirements of the HMR applicable to the particular shipment. In this final rule, PHMSA is reinstating text in § 171.22(f) to clearly state that both the shipper and forwarding agent at the place of entry must be provided with written information on the requirements of the HMR applicable to the particular shipment. PHMSA received two comments from ACA and DGAC providing general support for the amendment as proposed.

Part 172

Section 172.101

Section 172.101 contains the HMT and explanatory text for using the table information and each of the columns. In this final rule, PHMSA is making a number of revisions to the § 172.101 HMT: including the special provisions listed in Column (7) and specified in § 172.102; removing the PG II designation from Column (5) of the HMT for organic peroxides (Division 5.2), self-reactive substances (Division 4.1), and explosives (Class 1) as requested in P-1590; and clarifying the regulations and correct inadvertent errors. Changes to the § 172.101 HMT will appear as a “revise,” and include changes to the following table entries: “Calcium nitrate, UN1454,” “Corrosive liquids, flammable, n.o.s., UN2920,” “Fire extinguishers, UN1044,” “Oxidizing solid, corrosive, n.o.s., UN3085,” “Propellant solid, UN0501,” “Trinitrophenol (picric acid), wetted, with not less than 10 percent water by mass, UN3364,” and “Trinitrophenol, wetted with not less than 30 percent water, by mass, UN1344.”

The entry for “Calcium nitrate, UN1454” is being revised to reflect a change that was intended to be made when PHMSA published a final rule on January 7, 2013 [Docket No. PHMSA-2012-0027 (HM-215L); 78 FR 987]. Special Provision B120 was inadvertently not assigned to the entry for “Calcium nitrate, UN1454” when several other HMT entries were revised to include it. Special Provision B120 indicates that the material, when offered in conformance with the applicable requirements of part 178 and general packaging requirements in part 173, may be offered for transportation in a flexible bulk container. PHMSA is revising the HMT to add Special Provision B120 to Column (7) for the entry “Calcium nitrate, UN1454.”

The entry for “Corrosive liquids, flammable, n.o.s., UN2920” is being revised to harmonize the HMR with the UN Model Regulations, IMDG Code, and the ICAO TI by means of providing

limited quantity exceptions for the PG II entry. Therefore, PHMSA is revising the entry for “Corrosive liquids, flammable, n.o.s., UN2920, PG II” to remove the word “None” from Column (8A) of the HMT and add “154.” This change will be consistent with similar PG II materials that are also provided the limited quantity exception.

The entry for “Fire extinguishers, UN1044” is being revised to eliminate reference to Special Provision 18, which is no longer in the HMR. Special Provision 18 was removed from § 172.102(c)(1) in a January 7, 2013 final rule [Docket No. PHMSA-2009-0126 (HM-215K); 78 FR 1101] and combined into revised § 173.309(a). We did not make a conforming amendment to remove Special Provision 18 from this entry in the HMT; thus, in this final rule, we are revising the entry for “Fire extinguishers, UN1044” by deleting the special provision.

The NPRM proposed to revise the entry for “Oxidizing solid, corrosive, n.o.s., UN3085” to harmonize with the UN Model Regulations, IMDG Code, and the ICAO TI by means of providing limited quantity exceptions for the PG II entry. However, in between the publishing of the NPRM and this final rule, PHMSA inadvertently revised this entry as proposed in a previous final rule [Docket No. PHMSA-2015-0103 (HM-260); 80 FR 72914]. Therefore, PHMSA will not be revising this entry in this final rule.

PHMSA received four comments on the proposed revisions to the UN3085 (as well as UN2920) in Column (8A). In their comments, ACA, Veolia, and URS supported the revision of these two entries to harmonize with UN Model Regulations, IMDG Code, and the ICAO TI. The URS provided a list of nine (9) additional PG II entries for which a limited quantity exception is provided under international standards but not in the HMR and requested the same revision made to UN2920 and UN3085 be made to these additional entries. An anonymous commenter requested that PHMSA make the same limited quantity exception revision to the UN3084, PG II entry. PHMSA agrees with the commenters that the HMR is not completely in alignment with the UN Model Regulations, IMDG Code, and the ICAO TI limited quantity exceptions with regard to these additional PG II entries. However, given the lack of historical context and the need for a technical review of each entry, PHMSA will only be revising the limited quantity exception for the entries that have been proposed. PHMSA may consider the revision to additional entries offered by the commenters under

a future rulemaking. Additionally, PHMSA encourages the commenters to submit a petition for rulemaking in accordance with §§ 106.95 and 106.100 for entries that they believe should also be revised.

The entry for “Propellant, solid, UN0501” is being revised to eliminate a reference to a requirement that is no longer in the HMR. Column (10B) of this entry lists vessel stowage provision 24E; however, vessel stowage provision 24E was removed from § 176.84(c)(2) when the Research and Special Programs Administration (RSPA), PHMSA’s predecessor, published a final rule on June 21, 2001 [Docket No. RSPA–2000–7702 (HM–215D); 66 FR 33316, effective October 1, 2001] that revised the table of provisions applicable to vessel transportation of Class 1 (explosive) materials. As this provision is no longer in the HMR, PHMSA is revising the entry for “Propellant, solid, UN0501” to remove vessel stowage provision 24E from Column (10B) of the HMT.

The HMT entries for “Trinitrophenol (picric acid), wetted, *with not less than 10 percent water by mass*, UN3364” and “Trinitrophenol, wetted *with not less than 30 percent water, by mass*, UN1344” are being revised to harmonize the HMR with the UN Model Regulations, IMDG Code, and the ICAO TI. Presently, Special Provision 162 is applied to UN3364 (*not less than 10 percent water*) and Special Provision 23 is applied to UN1344 (*not less than 30 percent water*). Special Provision 162 outlines a provision for transport of the material as Division 4.1: The material must be packed such that at no time during transport will the percentage of diluent fall below the percentage that is stated in the shipping description. Special Provision 23 is similar in that it also outlines this provision but includes an additional condition that quantities of not more than 500 grams per package with not less than 10 percent water by mass may also be classed in Division 4.1, provided a negative test result is obtained when tested in accordance with test series 6(c) of the UN Manual of Tests and Criteria.

The special provisions are assigned in the reverse manner to the trinitrophenol entries in the UN Model Regulations, IMDG Code, and the ICAO TI. Special Provision 23 is applied to UN3364 with the lower minimum diluent percent of water while the 500 gram limit per package for 10 percent diluent does not apply to UN1344 with the larger minimum diluent percentage of water (*i.e.*, 30 percent). Thus the special provision was incorrectly assigned in the HMR. For the entry “Trinitrophenol (picric acid), wetted, *with not less than*

10 percent water by mass, UN3364,” we are replacing Special Provision 162 in Column (7) of the HMT with Special Provision 23. Conversely, for the entry “Trinitrophenol, wetted, *with not less than 30 percent water, by mass*, UN1344,” we are replacing Special Provision 23 from Column (7) of the HMT with Special Provision 162.

PHMSA is revising Column (8C) of the HMT for “Asbestos, NA2212,” “Blue asbestos (*Crocidolite*) or Brown asbestos (*amosite, mysorite*), UN2212,” and “White asbestos (*chrysotile, actinolite, anthophyllite, tremolite*), UN2590,” to refer to packaging instructions in § 173.216, instead of § 173.240.

In a final rule published on November 23, 2015 [Docket No. PHMSA–2015–0103 (HM–260); 80 FR 72913], PHMSA revised the HMT entry “NA1993, Combustible liquid, n.o.s.” by removing special provision T4. In a subsequent final rule published on December 21, 2015 [Docket No. PHMSA–2011–0345 (HM–233D); 80 FR 79423] the same entry was revised by adding Special Provision 148. In making the addition of Special Provision of 148, the previously removed Special Provision T4 was inadvertently reinstated. This final rule corrects that error by removing Special Provision T4 from the entry for NA1993.

In a final rule published on January 21, 2016 [Docket No. PHMSA–2013–0042 (HM–233F); 81 FR 3635], PHMSA did the following:

- Inadvertently revised the “Corrosive liquids, n.o.s., UN1760” entry by assigning it the incorrect NA prefix and inserting Special Provision 386 to the Packing Group II and III entries. The HM–233F final rule should have revised the “Compounds, cleaning liquid, NA1760” entry by adding Special Provision 386 to the Packing Group II and III entries. This final rule corrects those errors by removing Special Provision 386 from the “Corrosive liquids” entry and adding them to the “Compounds, cleaning liquid” entry, and re-assigning the “Corrosive liquids” entry the correct prefix of UN.

- Inadvertently revised Column (10B) of the “Coating solution (*includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining*), UN1139” entry by removing the vessel stowage provision E and replacing with the letter B. Consequently, PHMSA is restoring the letter E in Column (10B) for this entry.

- Inadvertently revised Column (8B) of the “Printing ink, *flammable* or Printing ink related material (*including printing ink thinning or reducing compound*), *flammable*, UN1210” entry

by changing the packaging section for Packing Group I from § 173.173 to § 173.201. Consequently, PHMSA is restoring § 173.173 in Column (8B) for this entry. Further, in this final rule, PHMSA is correcting the roman and italicized text for this entry in Column (2) of the HMT.

- Inadvertently revised Column (7) of “Self-heating solid, organic, n.o.s., UN3088” by removing UN portable tank code T1 from the Packing Group III entry. Consequently, PHMSA is restoring the code to Column (7) of the HMT.

- Inadvertently revised Column (10B) of the “Potassium, UN2257”, “Sodium, UN1428”, and “Water reactive solid, n.o.s., UN2813” entries by removing vessel stowage provisions 13 and 148. Consequently, PHMSA is restoring the codes to Column (10B) of the HMT for each entry.

Section 172.102

Section 172.102 outlines special provisions that are listed in Column (7) of the § 172.101 HMT. Special Provision 136 is listed for the entry “Dangerous Goods in Machinery or Dangerous Goods in Apparatus, UN3363.” PHMSA received a request for a letter of interpretation (Ref. No. 12–0037) that sought confirmation that a material classed as a Class 2 gas that has packaging exceptions listed in Column (8A) of the HMT may be described as “Dangerous Goods in Apparatus, UN3363.” The requestor pointed out that the provisions in Special Provision 136 are inconsistent: Special Provision 136 currently states that except when approved by the Associate Administrator, machinery or apparatus may only contain hazardous materials for which exceptions are referenced in Column (8) of the HMT and are provided in part 173, subpart D. Subpart D contains the definitions, classification, packing group assignments, and exceptions for hazardous materials other than Class 1 and Class 7. However, preparation, packaging, and exceptions for Class 2 gases are located in subpart G of part 173. This should be indicated in Special Provision 136 to eliminate confusion that gases prepared in accordance with subpart G of part 173 would not be eligible to be described as “Dangerous Goods in Apparatus, UN3363.” It was not PHMSA’s intention to exclude Class 2 gases from using this proper shipping name, therefore, PHMSA is revising Special Provision 136 in § 172.102 to include reference to part 173, subpart G.

Section 172.201

Section 172.201 prescribes the requirements for the preparation and retention of shipping papers. This paragraph requires that, except as provided in § 172.604(c), a shipping paper must contain an emergency response telephone number. The reference in this paragraph to § 172.604(c) is inaccurate. The requirements in § 172.604 applicable to emergency response telephone numbers were changed when PHMSA published a final rule on October 19, 2009 [Docket No. PHMSA-2006-26322 (HM-206F); 74 FR 53413, effective November 18, 2009]. This rulemaking action moved the exceptions regarding the requirement to provide an emergency response telephone number to a new paragraph (d). PHMSA received one comment from the American Coatings Association (ACA) in support of this change without further issue. In this final rule, PHMSA is revising § 172.201(d) to accurately reference the exception from the emergency response telephone number requirement found in § 172.604(d).

Sections 172.301, 172.326, 172.328, and 172.330

Sections 172.301, 172.326, 172.328, and 172.330 prescribe marking requirements for non-bulk packagings, portable tanks, cargo tanks, tank cars, and multi-unit tank car tanks, respectively. Each of these sections contains a paragraph (specifically, §§ 172.301(f), 172.326(d), 172.328(e), and 172.330(c)) prescribing requirements for packages containing unodorized LPG to be legibly marked with “NON-ODORIZED” or “NOT-ODORIZED.” PHMSA received a request for a letter of interpretation (Ref. No. 06-0235) requesting clarification that the “NON-ODORIZED” or “NOT-ODORIZED” mark may also appear on a package containing odorized LPG. In the response letter, we noted that PHMSA addressed this issue in part in a final rule published by its predecessor agency, RSPA, on November 4, 2004 [RSPA-03-15327 (HM-206B); 69 FR 64462, effective October 1, 2006]. Final rule HM-206B changed the hazard communication requirements applicable to certain packages containing unodorized LPG, including the requirement to mark with “NON-ODORIZED” or “NOT-ODORIZED.” Specifically, it also clarified that the “NON-ODORIZED” or “NOT-ODORIZED” marking may appear on a tank car or multi-unit tank car tanks used for both unodorized and odorized LPG. This was implemented to address

the concerns expressed by a commenter about the logistics of tracking, inspecting, and stenciling tank cars to ensure proper marking. However, this clarification was not extended to cylinders, cargo tanks, and portable tanks containing LPG in that final rule. We further noted in the response letter that we intended to revisit this issue in a future rulemaking to extend this clarification to other packaging types that are filled with unodorized or odorized LPG.

PHMSA received negative comments from the NASFM, the NTSB, the IAFC, and the New Hampshire Office of the State Fire Marshall. The NTSB disagrees with the proposed exception, citing a 2005 railroad incident involving the release of diesel fuel from a locomotive and Safety Recommendation R-07-4 as grounds for their dissent.² The NTSB disagrees with both the proposed exception to expand eligible packaging types and the existing exception for tank cars, stating that it is concerned that the “NON-ODORIZED” or “NOT-ODORIZED” package markings would be rendered meaningless by the proposal to allow such a marking on a tank containing odorized LPG. It believes it is poor policy to allow “mislabeling” of LPG tanks merely for logistical convenience, further stating that while the HMR does not require odorization in all cases, the requirement to properly mark these packages as “ODORIZED” or “NOT-ODORIZED” based on the actual condition of the LPG being transported (odorized or not odorized) should be a fundamental tenet to emergency response planning and execution involving hazardous materials in transportation. Therefore, the NTSB urged PHMSA not to approve the proposed rule changes and suggests that instead, PHMSA approve an acceptable means for the “NON-ODORIZED” or “NOT-ODORIZED” marking to be temporarily covered whenever the container is used to transport odorized LPG. PHMSA disagrees with this comment and is puzzled as to how the incident cited in NTSB’s comment, which involved a collision of two trains and a release of diesel fuel from locomotives, is relevant to the proposed language from the NPRM. The allowance for the marking to remain on a package already exists for tank cars, so PHMSA simply proposed to extend this exception to other packaging types. We also disagree that the marking would be

² R-07-4: With the assistance of the Federal Railroad Administration, require that railroads immediately provide to emergency responders accurate, real-time information regarding the identity and location of all hazardous materials on a train.

rendered meaningless if allowed to remain on odorized tanks of LPG. If the contents were to undergo odorant fade during the course of transportation, this marking would provide an additional level of safety. Additionally, we fail to see how extending the requirement to existing package types is a detriment to the safety benefit provided by that mark existing on non-odorized packages of LPG.

The NASFM, IAFC, and the New Hampshire Office of the State Fire Marshall also provided negative comment; however, they did not comment on the proposed exception, instead focusing on the existing regulatory allowance for the marking to remain on tank cars and multi-unit tank car tanks. The three commenters all stated that the allowance of the marking to remain on odorized packages will create confusion for first responders when looking for leaks from containers with odorized LPG. They state that if the mark is seen on a tank that is actually odorized, they will skip over that tank and may miss a leak. PHMSA disagrees with the commenters and while we fully appreciate the benefit that odorization has for leak detection in an emergency response situation, we do not feel that it is the sole method to detect such leaks.

Thus, PHMSA is revising §§ 172.301(f), 172.326(d) and 172.328(e) to include the clarification that the marking may appear on these packagings used for both unodorized and odorized LPG and to remove the effective date of October 1, 2006. PHMSA is also removing the effective date referenced in paragraph § 172.330(c) for consistency.

Section 172.406

Section 172.406 specifies the placement of labels on a package. Paragraph (d) of this section prescribes requirements that labels be printed or affixed to a background of contrasting color, or they must have a dotted or solid line outer border. Further, § 172.407(b)(2) provides that the dotted line border on each label shown in §§ 172.411 through 172.448 is not part of the label specification, except when used as an alternative for the solid line outer border to meet the requirements of § 172.406(d). Based on this language, it appears that labels with a dotted or solid line outer border are permitted only if the surface of the package is not a contrasting color, thus causing confusion.

In this rulemaking, we are amending § 172.406(d) by expressly authorizing the use of labels described in part 172, subpart E with a dotted or solid line

outer border on a background of contrasting color. There is no reduction in hazard communication with this revision, and it will provide cost savings to shippers by eliminating the need to acquire and store two types of labels (one with a border and the other without) depending on the surface color of the package. PHMSA received one comment from ACA providing support for this amendment as proposed.

Section 172.407

Section 172.407 contains label specifications. Paragraph (d) of this section contains color specifications for labels including a requirement for color tolerances according to color charts referenced in appendix A to part 172 of the HMR. Paragraph (d)(4)(ii) states that the color charts are on display at the Office of Hazardous Materials Safety, Office of Hazardous Materials Standards, Room 8422, Nassif Building, 400 Seventh Street SW., Washington, DC 20590-0001. This address does not reflect the current address of the Office; thus PHMSA is amending the address in § 172.407(d)(4)(ii) to read Standards and Rulemaking Division, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 2nd Floor, East Building, 1200 New Jersey Avenue SE., Washington, DC 20590-0001.

Section 172.514

Section 172.514 prescribes the placarding requirements and exceptions for a bulk packaging containing a hazardous material. Paragraph (c)(4) provides an exception for an IBC that is labeled in accordance with part 172, subpart E, instead of placarded. IBCs that are labeled instead of placarded are authorized to display the proper shipping name and UN identification number in accordance with the bulk package marking size requirements of § 172.302(b)(2) in place of the UN number on an orange panel, placard, or white square-on-point. Section 172.302(b)(2) requires that for IBCs, markings have a width of at least 4.0 mm (0.16 inch) and a height of at least 25 mm (one inch). This is inconsistent with the UN Model Regulations, IMDG Code, and ICAO TI, which all require a height of 12 mm (0.47 inch). The international size requirement is equivalent to the non-bulk marking size requirement provided in § 172.301(a)(1). In addition, the reference to the bulk packaging marking requirements of § 172.302(b)(2) in § 172.514(c)(4) conflicts with § 172.336(d) identification number marking requirements, which states that when a bulk packaging is labeled instead of

placarded in accordance with § 172.514(c), identification number markings may be displayed on the package in accordance with the marking requirements of § 172.301(a)(1).

In the NPRM, we proposed to clarify that the proper shipping name and identification number marking size for an IBC that is labeled instead of placarded is at least 12 mm (0.47 inch), doing so by replacing the bulk package marking reference in § 172.514(c) with the non-bulk marking reference, specifically, § 172.301(a)(1). PHMSA received four comments from ACA, DGAC, DOW, and URS providing support for this international harmonization action. In their comments DGAC, DOW, and URS all correctly point out that the UN Model Regulations, IMDG Code, and ICAO TI require a 12 mm (0.47 inch) minimum height requirement for the identification number on an IBC that is labeled rather than placarded, although, a minimum height for the proper shipping name is not prescribed. The DGAC and DOW suggested § 172.514(c) be revised by removing the words “size requirements” from the proposed text which currently reads “. . . the IBC may display the proper shipping name and UN identification number markings in accordance with the size requirements of § 172.301(a)(1) . . .” Additionally, URS suggested that § 172.301(a)(1) should be revised to clarify that the size of the proper shipping name marking is not prescribed by the regulations.

The intent of the proposed action was to clarify that IBCs that are labeled instead of placarded can be marked in accordance with the non-bulk size requirements in § 172.301(a)(1) consistent with international standards. As § 172.301(a)(1) does not prescribe a size requirement for the proper shipping name, only the UN identification number would need to meet the 12 mm requirement. In the § 172.514 preamble we inadvertently stated, “[I]n this rulemaking, we are proposing to clarify that the marking size requirement, for both the proper shipping name and identification number, is at least 12 mm (0.47 inch) for an IBC that is labeled instead of placarded.” We agree with the comments from DGAC, DOW, and URS; thus, in this final rule, PHMSA is revising § 172.514(c)(4) for clarity as suggested by both DGAC and DOW. As § 172.301(a)(1) does not impose a size requirement for a proper shipping name, the removal of the words “size requirements” from § 172.514(c) clarifies that the 12 mm (0.47 inch) size requirement prescribed in § 172.301(a)(1) applicable to UN identification numbers does not also

apply to the proper shipping name. The reduced minimum marking size will alleviate the existing discrepancy between §§ 172.514(c)(4) and 172.336(d) and decrease frustration of shippers by harmonizing with international regulations, thus ensuring IBCs marked in accordance with these regulations are consistent with the HMR.

Part 173

Section 173.4a

Section 173.4a prescribes the requirements for excepted quantities of hazardous materials. The excepted quantities provisions were added to the HMR under an international harmonization final rule published on January 14, 2009 [Docket Nos. PHMSA-2007-0065 (HM-224D) and PHMSA-2008-0005 (HM-215)]; 74 FR 2254, effective February 13, 2009]. Excepted quantities provisions in § 173.4a are intended to be consistent with the existing exception in the ICAO TI. Paragraph (a) states that excepted quantities of materials other than articles transported in accordance with this section are not subject to any additional requirements of this subchapter except for. The language is unclear as to whether articles (including aerosols) may use the excepted quantities provisions. As a result, PHMSA is revising this paragraph to clarify that articles (including aerosols) are not eligible for excepted quantity reclassification under § 173.4a, although some aerosols are eligible to be shipped as small quantities by highway and rail in § 173.4. This will eliminate confusion as to the status of articles (including aerosols) in the context of this exception, while providing consistent language structure with Part 3, Chapter 5, Section 5.1 of the ICAO TI.

Section 173.24a

Section 173.24a prescribes additional general requirements for non-bulk packages. Paragraph (c)(1)(iv) provides the quantity limits for mixed contents packages (when multiple hazardous materials are packed within the same package) transported by aircraft. In this rulemaking, we are clarifying that the requirements provided in paragraph (c)(1)(iv) do not apply to limited quantity materials packaged in accordance with § 173.27(f)(2). This change is for clarification purposes only. Misapplication of § 173.24a(c)(1)(iv) would be duplicative and, in certain cases, would place unintended restrictions on the net quantity of hazardous materials per package.

Section 173.27

Section 173.27 prescribes general requirements for the transportation of hazardous material by aircraft. Paragraph (f)(2) contains the provisions for limited quantities but does not expressly address limited quantity packages of mixed contents. PHMSA received a request for a letter of interpretation (Ref. No. 13–0094) to clarify, for transportation by aircraft, the applicable section to reference. Specifically, the requester asked whether Table 3 in § 173.27(f)(3) or the general provisions in § 173.24a(c)(1)(iv) should be used when determining the maximum net quantity of each inner and outer packaging for limited quantity packages of mixed contents. In response, we stated that, as provided in § 173.27(f)(2), when a limited quantity of a hazardous material is packaged in a combination packaging and is intended for transportation aboard an aircraft, the inner and outer packagings must both conform to the quantity limitations set forth in Table 3, which provides the maximum net quantity of each inner and outer packaging for materials authorized for transportation as a limited quantity by aircraft. For mixed contents of limited quantities by air, the shipper must comply with the maximum authorized net quantity of each outer package (Column 4 of 5 in Table 3) and ensure that the total net quantity does not exceed the lowest permitted maximum net quantity per package as shown by hazard class or division for the hazardous materials in the mixed contents package.

In this rulemaking, we are revising § 173.27(f)(2)(i) to clarify that the maximum net quantity for limited quantity packages of mixed contents must conform to the quantity limitations provided in Table 3 of § 173.27(f)(3). PHMSA received one comment from UPS providing support for this revision.

Section 173.150

Section 173.150 provides exceptions for Class 3 (flammable and combustible liquid) hazardous materials. The requirements for combustible liquids in bulk packagings are found in § 173.150(f)(3). Although placarding under subpart F of part 172 is specified as a requirement in § 173.150(f)(3)(iv), registration requirements of § 107.601 are not included among the subject requirements. Given that § 173.150(f)(3) provides a list of subject requirements for combustible liquids in bulk packaging, PHMSA is revising this section through additions of a new subparagraph § 173.150(f)(3)(xi) stating that the registration requirements in

subpart G of part 107 are also applicable, for bulk packagings only. PHMSA is also revising § 173.150(f)(3)(ix) and (x) for punctuation applicable to the listing of requirements. PHMSA received one comment from ACA providing support for the amendments as proposed.

Section 173.159

Section 173.159 prescribes requirements applicable to the transportation of electric storage batteries containing electrolyte acid or alkaline corrosive battery fluid (*i.e.*, wet batteries). This section outlines packaging requirements, exceptions for highway or rail transport, and tests that batteries must be capable of withstanding to be considered as non-spillable. However, there is no authorization to transport nor are there any requirements or instructions for shippers of damaged or leaking wet batteries on how to prepare these items for transport. PHMSA received a request for a letter of interpretation (Ref. No. 06–0031) to clarify whether a shipper of a damaged wet battery may utilize the exception from full regulation provided in § 173.159(e). In response, we stated that a damaged battery may be shipped in accordance with § 173.159(e) provided: (1) It has been drained of battery fluid to eliminate the potential for leakage during transportation; (2) it is repaired and/or packaged in such a manner that leakage of battery fluid is not likely to occur under conditions normally incident to transportation; or (3) the damaged or leaking battery is transported under the provisions of § 173.3(c).

PHMSA proposed adding a new paragraph (j) to § 173.159 to address this provision. However, a final rule published January 21, 2016 [Docket No. PHMSA–2013–0042 (HM–233F); 81 FR 3635] added a paragraph (j) to account for nickel cadmium batteries containing liquid potassium hydroxide. Therefore, all references to the previously proposed paragraph (j) will be to the new paragraph (k).

PHMSA received positive feedback from commenters with the ATA, the UPS, the USWAG, and Veolia voicing general support for this amendment. Veolia requested that “cargo vessel” be added as a mode of transportation; however, as this was not proposed and that inclusion would need an analysis from both PHMSA and the USCG, and we will not be authorizing vessel transportation in this final rule.

The Battery Council International (BCI) also commented on this provision. While they voiced strong support for the creation of a new paragraph to address

damaged wet batteries, they had concerns that the proposed regulatory text was unclear, did not take into account the industry standard, and may inadvertently eliminate existing exceptions for wet batteries. To supplement their comments, a meeting was requested by representatives of BCI with PHMSA to clarify their comments. Notes from that August 11 meeting can be found in the docket for this rulemaking. The BCI’s primary concern is that a different packaging method referenced in previous PHMSA letters of interpretation (Ref. Nos. 09–0227 and 06–0062) that utilizes leak-proof packaging in other than an intermediate/outer configuration (*i.e.*, single polyethylene bag) is absent from paragraph (j). BCI asserts that the single polyethylene bag method is sufficient to prevent leakage of the battery acid during transportation and that changing this standard industry practice will be highly disruptive, costly, and likely to result in considerable confusion. During the meeting, it emphasized that this was the predominant method of transporting damaged wet batteries by a vast majority of industry.

PHMSA agrees with BCI’s concerns and it was not our intent to undo progress made to address safety concerns by industry and PHMSA in the past by not allowing for this packaging configuration. Therefore, we are amending paragraph (k) (*i.e.*, previously proposed paragraph (j)) to allow for this packing method. PHMSA believes that public safety would be better served by allowing the use of a method that is known and widely used by industry, that has a strong safety record for transporting damaged wet batteries, and on which affected hazmat employees are trained. The BCI further points out confusion in the proposed regulatory text in paragraphs (j)(2) and (3), stating that it is unclear how a shipper could comply with the packaging requirement in § 173.159(j)(2) without also complying with § 173.159(j)(3). PHMSA agrees with this comment; although, paragraphs (j)(2) and (3) are intended to be used in tandem, they currently appear to be separate conditions for transport. Therefore, we are amending the regulatory text to consolidate the previously proposed (j)(2) and (3) into one paragraph, now (k)(2). Lastly, BCI requests that clarification be added to ensure that there is no confusion that the batteries shipped under this paragraph are still eligible to be shipped using the exception found in § 173.159(e). PHMSA agrees. It was never our intent to prohibit the use of this exception, and it was an oversight

in the NPRM not to specify this. Therefore, we are including a provision to clarify the eligibility of damaged wet batteries for exception under paragraph (e) when transported in accordance with § 173.159(k).

PHMSA is adding a new paragraph (k) in § 173.159 to address the need for provisions that allow shippers to prepare for transport and offer into transportation damaged wet electric storage batteries for purposes of recycling. Note that in addition to the conditions listed in paragraph (k), damaged wet electric storage batteries must also meet requirements of § 173.159(a).

PHMSA is reinserting language into § 173.159(e)(4) of the HMR indicating that the transport vehicle may not carry material shipped by any person other than the shipper of the batteries. This language was inadvertently deleted from the HMR when PHMSA published a final rule titled “Hazardous Materials: Reverse Logistics” under Docket HM-253 (81 FR 18527; March 31, 2016). As revised by HM-253, § 173.159(e)(4) now states that a carrier may accept shipments of batteries from multiple locations for the purpose of consolidating shipments of batteries for recycling, which creates confusion in the context of the section. The intent of the HM-253 final rule was to allow carriers to consolidate shipments of batteries from multiple locations for the purpose of recycling. To correct this inadvertent deletion, in this final rule we are revising § 173.159(e)(4) by retaining the previous text and providing a clear exception when batteries are consolidated for recycling.

Section 173.166

Section 173.166 prescribes requirements applicable to the transportation of safety devices. In a final rule published on July 30, 2013 [Docket No. PHMSA-2010-0201 (HM-254); 78 FR 45880], PHMSA revised the requirements applicable to these materials. Among the changes made was the adoption of Special Permit DOT-SP 12332 into the HMR. This special permit excepted Class 9 air bag inflators, air bag modules, or seat-belt pretensioners assigned to UN3268 from the requirement to provide the EX number (*i.e.*, the approval number) on the shipping paper.

Under § 173.166, paragraph (e)(6) authorizes packaging alternatives for air bag inflators, air bag modules, and seat-belt pretensioners that have been removed from, or were intended to be used in, a motor vehicle, as well as those devices that meet the requirements for use in the United

States and are being transported to recycling or waste disposal facilities. When adopted in HM-254, a provision in § 173.166(e)(6) stated “for domestic transportation by highway,” thereby limiting the use of this exception to ground transport, yet DOT-SP 12332 specifically permitted transport by “cargo vessel” as an authorized mode of transportation. For greater consistency with the special permit language adopted in HM-254, PHMSA is revising paragraph (e)(6) to add the words “or cargo vessel,” and as a result, PHMSA received one comment from Veolia providing support for this revision. Veolia noted that this revision will remove the administrative burden from both PHMSA and the Special Permit holders necessary for maintaining the special permit.

Sections 173.170 and 173.171

Sections 173.170 and 173.171 prescribe exceptions for the transportation of black powder for small arms classed as a Division 1.1 explosive and the transportation of smokeless powder for small arms classed as a Division 1.3 or Division 1.4 explosive. These exceptions permit these materials to be reclassified as Division 4.1 flammable solid material for domestic transportation. In both sections, the total quantity of black or smokeless powder for small arms is limited to 45.4 kg (100 pounds) net mass in a motor vehicle (other modes are authorized as well). PHMSA believes the exception should be updated to account for modern highway transportation. Currently, the HMR defines “motor vehicle” in § 171.8 to include a vehicle, machine, tractor, trailer, or semitrailer, or any combination thereof. The use of the term in this exception limits a carrier with multiple trailers to 100 pounds total of black or smokeless powder, reclassified as Division 4.1. Carriers who commonly transport double- or triple-trailer loads by highway may find it difficult to ensure that each trailer contains an amount of black or smokeless powder, reclassified as Division 4.1 that would keep the total quantity in all trailers under 100 pounds.

PHMSA believes the term “motor vehicle” should be replaced with “transport vehicle” in the context of this exception and that doing so will not decrease the level of safety for the transport of these materials. The term “transport vehicle” is defined in § 171.8 as a cargo-carrying vehicle, such as an automobile, van, tractor, truck, semitrailer, tank car, or rail car, used for the transportation of cargo by any mode. Each cargo-carrying body (a trailer, a rail car, etc.) is a separate transport vehicle.

Changing the term “motor vehicle” to “transport vehicle” would reflect a consistency in the ability to use exceptions for black or smokeless powder with the other modes, such as rail and vessel, whereby each rail car or freight container is permitted to have 100 pounds total.

In the NPRM, PHMSA solicited comment from stakeholders on this issue and requested any available data relating to incidents involving transport of black or smokeless powder for small arms reclassified as Division 4.1 by motor vehicle. PHMSA received four comments from ATA, DGAC, SAAMI, and UPS in support of this revision. The SAAMI, noted, “[w]e are aware of no incidents involving transporting black or smokeless powder for small arms reclassified as Division 4.1 by motor vehicle. These products are subject to a testing regime to ensure that they meet the rigid requirements for transport as a flammable solid.” Thus, in this final rule, PHMSA is revising §§ 173.170 and 173.171 as proposed in the January 23, 2015 NPRM to replace the term “motor vehicle” with “transport vehicle.”

Section 173.199

Section 173.199 prescribes the packaging requirements for Category B infectious substances. Paragraph (a)(4) of this section requires that the packaging be capable of successfully passing the drop test in § 178.609(d) and the steel rod impact test in § 178.609(h) at a drop height of at least 1.2 meters (3.9 feet).

PHMSA received a request for a letter of interpretation (Ref. No. 07-0018) regarding the test requirements in § 173.199(a)(4). The request pointed out that in the preamble to the final rule published on June 2, 2006 [Docket No. PHMSA-2004-16895 (HM-226A); 71 FR 32244] states that Category B packagings must be capable of passing a drop test, but need not be capable of passing a puncture or other performance test. The requester asked if the regulatory text requiring the steel rod impact test for this packaging was an error.

As we clarified in our response, PHMSA did not intend to require the steel rod impact test in § 178.609(h) for a packaging used to transport a Category B infectious substance. Therefore, in this rulemaking, we are revising the provisions in § 173.199(a)(4) by removing the reference to the steel rod impact test in § 178.609(h).

Section 173.216

Section 173.216 establishes the transportation requirements for asbestos. Paragraph (c) of this section

provides packaging requirements for asbestos including both “bulk” and “non-bulk” packaging options.

PHMSA received a request for a letter of interpretation (Ref. No. 11–0169) regarding the applicability of bulk and non-bulk packaging instructions for asbestos. The letter expressed confusion regarding whether § 173.216 should apply to both “bulk” and “non-bulk” packages of asbestos, because as the requester noted in the letter, the § 172.101 HMT entry for “Asbestos,” NA2212 refers to packaging instructions specified in § 173.216 for non-bulk packaging requirements and § 173.240 for bulk packaging requirements. It was also noted in the letter that some of the packaging options specified in § 173.216 are considered bulk packagings.

PHMSA acknowledged that some of the packaging options provided in § 173.216(c) meet the bulk packaging definition specified in § 171.8 and, therefore, would be considered a bulk packaging for transportation purposes. In this rulemaking, we are revising the bulk packaging section reference in Column (8C) of the HMT to add a reference to “216” for the table entries associated with the following identification numbers: NA2212, UN2212, and UN2590. This revision will: (1) Eliminate the confusion pertaining to authorized bulk packaging specifications contained in a section previously only referenced in the authorized non-bulk Column (8B) of HMT and (2) allow for the continued use of bulk packages in § 173.240.

Section 173.225

Section 173.225 contains the packaging requirements and other provisions applicable to the transportation of organic peroxides. Paragraph (d) of this section contains the Packing Method table, which provides packagings authorized for organic peroxides and the maximum quantity permitted in each package or packaging. The table is missing pertinent information, so PHMSA is revising the table to add a reference to Note 1 for OP2, which states that if two values are given, the first applies to the maximum net mass per inner packaging and the second to the maximum net mass of the complete package. Additionally, PHMSA is revising the maximum quantity for solids and combination packagings (liquid and solid) for OP4 to read as “5/25” kg instead of only “5.”

Section 173.301

Section 173.301 applies to general requirements for shipment of compressed gases and other hazardous

materials in cylinders, UN pressure receptacles, and spherical pressure vessels. Paragraph (g) of this section describes the requirements to manifold cylinders in transportation. A manifold system is a single pipe or chamber connected to a group of cylinders, which allows for a single point of loading and unloading.

Incidents investigated by the NTSB have highlighted potential risks when transporting manifolded acetylene trailers.³ These incidents included overturned vehicles and two unloading releases. As a result of the impact caused by ejection of the cylinders from the vehicle during overturn incidents, cylinders have shown signs of broken valves, burst heads, burst walls, as well as bulging and denting of the walls. The impact resulting from the ejection of the cylinders from the vehicle also can cause the valves to break, which may ignite the acetylene. The NTSB’s investigation also concluded that the unloading sequence is occasionally done out of order from what is specified in the standard operating procedures and that this can be a contributing factor to incidents.

The NTSB has issued two Safety Recommendations⁴ to PHMSA based on recent incidents involving manifolded acetylene trailers:

H–09–01: Modify 49 CFR 173.301 to clearly require (1) that cylinders be securely mounted on mobile acetylene trailers and other trailers with manifolded cylinders to reduce the likelihood of cylinders being ejected during an accident and (2) that the cylinder valves, piping, and fittings be protected from multidirectional impact forces that are likely to occur during highway accidents, including rollovers.

H–09–02: Require fail-safe equipment that ensures that operators of mobile acetylene trailers can perform unloading procedures only correctly and in sequence.

Given the results of the NTSB investigations, as well as the associated safety risks of mobile acetylene trailer overturns and unloading operations, PHMSA proposed in the NPRM to incorporate by reference in § 171.7 of the HMR the CGA G–1.6–2011, *Standard for Mobile Acetylene Trailer Systems*, Seventh Edition, copyright 2011. CGA G–1.6 would serve to address the NTSB Safety Recommendations specific to mobile acetylene trailers. This pamphlet was updated by the CGA with input from both PHMSA and the industry to address cylinder securement under

accident conditions, valve protection from multidirectional impact forces, and unloading procedures specific to mobile acetylene trailers.

Specifically, PHMSA proposed to incorporate the CGA pamphlet into § 171.7 and to revise § 173.301(g)(1)(iii) to indicate that mobile acetylene trailers must be maintained, operated, and transported in accordance with CGA Pamphlet G–1.6. In addition, PHMSA sought specific comment on the inclusion of CGA Technical Bulletin (TB) TB–25 to address structural integrity requirements. PHMSA also proposed to revise § 177.840 by adding paragraph (a)(3) to state that cylinders containing acetylene and manifolded as part of a mobile acetylene trailer system must be transported in accordance with § 173.301(g) to ensure that this requirement is addressed in the carriage by highway portion of the HMR.

PHMSA received two comments on this provision. The CGA, who petitioned to incorporate by reference CGA Pamphlet G–1.6, stated continued support for the adoption of this provision. Additionally, they comment that TB–25 ought not to be included in the adopted regulations, stating that it would be incorrectly applied. TB–25 addresses tubes that are mounted horizontally on a trailer chassis whereas acetylene cylinders are required to be mounted vertically with individual valve protection. Thus, while tubes are permanently mounted onto a trailer chassis, acetylene cylinders are not permanently attached to the trailer to allow for periodic maintenance (*i.e.*, resolventing).

In its comment, the NTSB agrees with PHMSA’s intent to address mobile acetylene trailers but states that CGA Pamphlet G–1.6 does not fully address accident impact protection from multidirectional forces that are likely to be encountered during highway accidents, including rollover. Additionally, they believe TB–25 should be included to address manifolded acetylene cylinders and state that a revision to TB–25 to include vertically-mounted, manifolded cylinders would provide a standard for accurate and verifiable performance testing, analytical methods, or a combination thereof, to prove the adequacy of mobile acetylene trailer designs in both normal operation and accident conditions. The NTSB also disagrees with PHMSA that the proposed changes address cylinder securement, vehicle accident impact, or rollover protection as recommended in Safety Recommendation H–09–01. Lastly, it states that CGA Pamphlet G–1.6 does not mandate operator

³ <https://www.nts.gov/doclib/safetystudies/SIR0901.pdf>.

⁴ http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/NTSB%20Files/H_09_1_2_Original.pdf.

equipment that would require them to perform unloading procedures in the correct sequence and that it only requires that instructions are readily available to the operator.

PHMSA appreciates both CGA and NTSB's comments on this provision. We recognize NTSB's concerns regarding the nature of its recommendations and what was proposed in the NPRM. Its comments demonstrate that further examination of this issue regarding performance in accident conditions is necessary. While we cannot adopt additional provisions at this time as they are beyond the scope of this rulemaking, we will work with both the NTSB and the CGA to address remaining concerns and additional action may be taken in a future rulemaking. However, at this time PHMSA is adopting as proposed the incorporation by reference of CGA Pamphlet G-1.6.

Section 173.306

Section 173.306 provides exceptions from the HMR for compressed gases, including aerosols, when transported in limited quantities. In a final rule published May 14, 2010 [Docket No. PHMSA-2009-0289 (HM-233A); 75 FR 27205], PHMSA added a new paragraph (k) to § 173.306 adopting provisions from DOT-SP 12842. These provisions authorized an increase in gross weight per package for the purpose of packaging discarded empty, partially used, and full aerosol containers to be transported to a recycling or disposal facility.

PHMSA received a request for a letter of interpretation (Ref. No. 12-0004) seeking confirmation that aerosols shipped for disposal or recycling in compliance with § 173.306(k) are permitted the same exceptions (*i.e.*, the marking and labeling requirements of part 172, subparts D and E, respectively, and shipping paper requirements, unless it is a hazardous waste or hazardous substance, of part 172, subpart C) granted under §§ 173.306(i) and 173.156(b) without being reclassified as an ORM-D material. The requester also pointed out that under DOT-SP 12842, aerosols shipped for disposal or recycling were excepted from the marking, labeling, and shipping paper requirements, unless they were considered a hazardous waste or hazardous substance, without being reclassified as an ORM-D material.

In response to the NPRM, PHMSA received three comments on this proposed change. Two commenters, the USWAG and Veolia voiced general support for the revision. However, both Veolia and ACA noted a mistake in the

preamble language of the NPRM and believe the applicable marking section referenced in the discussion was in error and should be § 172.315(a)—for modes other than air transport, not paragraph (b). Though, Veolia does note that the proposed revised text included by PHMSA in § 173.306(k)(3) is correct by referencing § 172.315(a). PHMSA appreciates the comment from Veolia and agrees that they are correct. Additionally, in its comment, ACA questions the need for the proposed marking requirement in § 173.306(k)(4) requiring that limited quantity packages containing aerosols for recycling or disposal conforming to the provisions of paragraph (a)(3), (a)(5), or (b)(1) must also be marked “INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS” in addition to marking in accordance with § 172.315(a). The ACA commented that the “INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS” marking is explicitly not required by § 173.306(i) and therefore an original (not for recycling or disposal) shipment of aerosols meeting the requirements of a limited quantity is not required to be marked “INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS”. The ACA contends that when an aerosol is ready for disposal or recycling it is presumably empty or less than full and that the risk is lower, and as such, it questions the need for this additional marking. The ACA commented that this situation is somewhat confusing and will likely lead to mistakes and in addition, will require shippers of aerosols to stock two different boxes or a roll of labels for the disposal or recycling shipments, incurring additional costs for very low-risk commodities.

PHMSA agrees that the proposed marking of packages with “INSIDE CONTAINERS COMPLY WITH PRESCRIBED REGULATIONS” is not necessary, as the presence of a § 172.315(a) limited quantity mark on a package prepared in accordance with § 172.306(k) sufficiently communicates conformance with applicable requirements, and although PHMSA does not necessarily agree that the risk of empty or partially full aerosols is lower due to the much larger quantity authorized per package (*i.e.*, 500 kg gross) compared to the standard limitation of 30 kg gross, we believe the safety concern of the larger quantity is offset by the conditions of the exception in § 172.306(k), specifically, protecting or removing the valve stem of the aerosols and limiting carriage to private or contract carriers, or under exclusive

use service by common carriers. The former protects against the release of contents and while the latter prevents introduction into common transportation channels where transport personnel do not have as much expertise and knowledge of the package and its contents. Therefore, in this rulemaking, we are revising § 173.306(k) by clarifying that aerosols shipped for recycling or disposal by motor vehicle, under the specific conditions provided in § 173.306(k), are afforded the applicable exceptions provided for ORM-D materials granted under §§ 173.306(i) and 173.156(b). In addition, § 173.306(k) packages must be marked in accordance with § 172.315(a).

Sections 173.314(h) and 173.315(b)(1)

Section 173.314 establishes requirements for compressed gases in tank cars and multi-unit tank cars, and § 173.315 establishes requirements for compressed gases in cargo tanks and portable tanks. PHMSA is aware of several incidents possibly attributed to either the under-odorization or odorant fade of LPG. Although not transportation related, most notable of these incidents is one that happened in Norfolk, MA on July 30, 2010, where an explosion occurred at a residential condominium complex that was under construction. Emergency responders from 21 cities and towns deployed personnel to the accident site. The accident resulted in seven injuries and one fatality.

The subsequent investigation raised questions as to whether there was a sufficient level of odorant in the LPG contained in the on-site storage tanks. In accordance with Federal and State laws and regulations, LPG intended for use by non-industrial entities is generally required to be odorized, or stented, to enable the detection of any unintended release or leak of the gas. LPG is highly flammable, and is dangerous to inhale in large quantities; thus the addition of an odorant is a safety precaution that helps warn those in the area that a release of gas has occurred. In the Norfolk incident, there was no noticeable evidence of odorant that would indicate a leaking. PHMSA has consulted with stakeholders from industry, fire fighter associations, and other regulatory agencies in order to better understand the root cause of incidents like the one in Norfolk. Although additional research may be necessary in order to come to more definitive conclusions, PHMSA has identified the following situations in which the risks of under-odorization or odorant fade are more likely to occur:

Injection Process: On December 13, 2012, PHMSA met with representatives from the NPGA to gain a better understanding of the LPG odorization process. During this meeting, representatives from the NPGA stated that the most common method for the odorization of LPG is through an automated system. However, the NPGA also noted there are situations where the odorization process is manually performed. Preliminary investigations into the Norfolk, MA incident suggest that the lack of sufficient odorization rendered the LPG undetectable when the on-site storage tank began to leak. In situations where the injection process is not fully automated, the potential for human error may increase the possibility of under-odorization. We believe that the insufficient level of odorant in the LPG contained in the on-site storage tank involved in the Norfolk, MA incident was likely a major contributing factor in limiting the ability of on-site personnel to readily detect the leak.

New Tanks or Freshly Cleaned Tanks: During our meetings with various stakeholders, several indicated that a phenomenon known as “odor fade” may be a problem when new or recently cleaned tanks are used. New or recently cleaned tanks may absorb the odorant into the metal shell of these tanks leading to an “odorant fade,” thus limiting the effectiveness of the remaining odorant in the LPG.

Odorization Standards: The odorization of LPG is addressed by Federal and State laws and regulations, as well as by generally accepted industry standards and practices. When offered and transported in commerce, the HMR specifies that all LPG in cargo and portable tanks be effectively odorized using either 1.0 pound of ethyl mercaptan, 1.0 pound of thiophane, or 1.4 pounds of amyl mercaptan per 10,000 gallons of LPG, in the event of an unintended release or leak to indicate the presence of gas. The HMR does not, however, require LPG to be odorized if odorization would be harmful in the use or further processing of the LPG, or if odorization will serve no useful purpose as a warning agent in such use or further processing. Essentially, this exception applies to LPG being transported to industrial end-users.

In response to the NPRM, PHMSA received comments from the Massachusetts Department of Fire Services, the NASFM, the NTSB, the IAFC, the NPGA, Trammo Inc., and the New Hampshire Office of the State Fire Marshall on the proposed odorization requirements. All of the commenters

supported the development of an odorization standard for rail tank cars as it exists for cargo tanks and portable tanks. Additionally, support for qualitative testing to address under-odorization or odorant fade was voiced.

The Massachusetts Department of Fire Services generally support PHMSA’s proposal to address odorization of LPG in both cylinders and rail cars, as well as the creation of a performance standard to address issues of under-odorization and odorant fade of LPG in transportation. They believe that the proposals could be strengthened in two ways: (1) Mandate qualitative testing equivalent to the Code of Massachusetts Regulations, which specifies the tests that can be used to satisfy this requirement; and (2) mandate recordkeeping requirements that can be made available upon request. Records should include: The process of odorization, testing and test results, and if necessary, remediation by injection of additional odorant. The odorization in cylinders is not being adopted as proposed. While PHMSA appreciates the prescriptive additional requirements for odorization offered in the comment from the Massachusetts Department of Fire Services we disagree with specifying the tests that can be used and requiring recordkeeping. These measures were not proposed in the NPRM and PHMSA sees specifying the tests as a limiting factor to addressing odorization qualitative testing. While we do not take issue with using the tests outlined in the Code of Massachusetts Regulations, we are not prescribing specific tests. In addition, the requirement for recordkeeping was not proposed in the NPRM, so obligatory paperwork burdens were not accounted for: PHMSA is required by Federal law to reduce the paperwork burdens it imposes on private citizens and businesses. Accordingly, we do not agree that the safety benefits achieved by requiring recordkeeping are justified. These comments by the Massachusetts Department of Fire Services were echoed by the NASFM, the IAFC, and the New Hampshire Office of the State Fire Marshall.

As discussed in the section referencing the Provisions Not Adopted in This Final Rule, the NPGA opposed an odorization testing requirement for cylinders and cargo tanks. Although PHMSA disagrees with NPGA that cargo tanks should be excluded from the requirements to address odorant fade or under-odorization, we agree with its comment that it should be addressed “upstream” in transportation. Therefore, we are only applying the revised text in § 173.315(b)(1) to cargo tanks and

portable tanks being offered for transport from a refinery, gas plant, or pipeline terminal.

The NPGA also provided suggestions to improve the proposed § 173.314(h) language. It suggests deleting the references to thiophane and amyl mercaptan as these materials are no longer used as odorant in LPG. PHMSA agrees with this comment and will remove those references. Due to universal support by commenters for requiring an odorant performance standard as well as measures to address odorant fade and under-odorization in rail tank car tanks, we are adopting new § 173.314(h) provisions with minor changes.

Trammo Inc. generally supported the proposed changes, but expressed concern about the odorization requirements regarding exporting propane. They note that odorized propane cannot be shipped internationally because it may be sold for industrial purposes for which odorization may be harmful, and that a small specialized fleet of refrigerated gas carriers refuse to carry odorized products because of persistent cargo residue and contamination. Trammo Inc. notes that receiving odorized propane would have negative consequences for the company and its customers. PHMSA notes these concerns; however, PHMSA points out that §§ 173.314(h) and 173.315(b)(1) provide an exception that addresses this scenario indicating 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. This exception would apply to the exportation and further distribution of liquefied propane gas internationally if it cannot be offered as odorized.

Part 175

Sections 175.1 and 175.9

Section 175.1 describes the purpose, scope, and applicability of part 175 to air operations, specifically, the transportation of hazardous materials in commerce by air. Section 175.9 provides exceptions from regulation under the HMR for certain special aircraft operations. Specifically, paragraph (b)(4) of § 175.9 excepts hazardous materials carried and used during dedicated air ambulance, firefighting, or search and rescue operations. To clarify that these operations are not subject to the HMR when in compliance with applicable Federal Aviation Regulations (FAR; 14 CFR) and any additional Federal Aviation Administration (FAA)

requirements, PHMSA is adding a new paragraph (d) in § 175.1 stating that the HMR does not apply to dedicated air ambulance, firefighting, or search and rescue operations. This will eliminate any confusion that these air operations would otherwise be subject to requirements in the HMR (*e.g.*, passenger notification requirements). PHMSA is also removing § 175.9(b)(4) for consistency.

As with other conditional exceptions to the HMR, non-compliance with the FAR could subject operators to enforcement under the HMR, but PHMSA does not anticipate any adverse safety consequences with this proposed revision due to the existing training requirements in the FAR on the proper handling and stowage of hazardous materials carried onboard aircraft.

The FAA and PHMSA recognize that certain operators do not solely utilize their aircraft for purposes under § 175.9(b)(4). Normal transport operations (*i.e.*, the transport of passengers or cargo not required for performance of, or associated with, the specialized emergency function) would continue to be subject to the HMR. However, staging operations and other operations related to dedicated air ambulance, firefighting, or search and rescue operations are intended to be excepted from the HMR when in compliance with the FAR. We note the following definitions in FAA Order 8900.1 (Vol. 3, Chapter 14, Section 1, 3–529(C)):

(1) Firefighting. This term includes the drop of fire retardants, water, and smoke jumpers. It also includes the transport of firefighters and equipment to a fire or to a base camp from which they would be dispersed to conduct the firefighting activities.

(2) Search and Rescue. Search and rescue is a term of art meaning aircraft operations that are flown to locate people who cannot be located from the ground. The term includes operations where the aircraft is indispensable to the search, or is the only feasible means of reaching the victim. Victims would be considered to be “associated with” the search and rescue operation. The term “search and rescue” does not include routine medical evacuation of persons due to traffic accidents and other similar incidents.

Air ambulance operators are required by the FAR to utilize either Operational Specification (OpSpec) A021 (Helicopter Emergency Medical Services (HEMS) Operations) or A024 (Air Ambulance Operations—Airplane) and must obtain and adhere to the appropriate OpSpec to be excepted from the HMR.

Section 175.8

Section 175.8 provides exceptions from certain regulations for air carrier operator equipment and items of replacement. Paragraph (b)(1) provides that oxygen, or any hazardous material used for the generation of oxygen, for medical use by a passenger, which is furnished by the aircraft operator in accordance with certain FAR (14 CFR) requirements is not subject to the requirements of the HMR. The provisions of the FAR, at § 125.219, Oxygen for medical use by passengers, was inadvertently left out of paragraph (b)(1). In this rulemaking, we are revising paragraph (b)(1) by adding the appropriate FAR, part 125 citation.

Section 175.10

Section 175.10 provides exceptions for passengers, crewmembers, and air operators. Paragraph (a) of this section lists a number of hazardous materials that are permitted for carriage by passengers or crewmembers provided the requirements of §§ 171.15 and 171.16 and the conditions of this section are met. PHMSA is proposing revisions to some of these provisions to promote clarity.

In paragraph (a)(6), hair curlers (curling irons) containing a hydrocarbon gas, such as butane, and carried in carry-on or checked baggage, are excepted from the requirements of the HMR. However, gas refills for such curlers are not permitted in carry-on or checked baggage. In this final rule, PHMSA is prohibiting such hair curlers in checked baggage due to the risk posed by flammable gases in an inaccessible compartment on a passenger-carrying aircraft. Flammable gases will burn if mixed with an appropriate amount of air and confined burning of a flammable gas can lead to detonation. As a result, we remain concerned with the flammability hazard posed by butane and other flammable gases and the ability of such gases to propagate or contribute to a fire in the cargo compartment of an aircraft. This concern is particularly relevant to carriage in checked baggage, where damage to the curling iron and the subsequent release of a flammable gas may occur if the baggage is mishandled or the article itself is compromised.

Because of the risks posed by flammable gas, a number of safety requirements apply to cargo shipments of flammable gas on passenger-carrying aircraft. Most Division 2.1 flammable gas substances and articles are generally forbidden from transportation as cargo aboard passenger-carrying aircraft, and PHMSA’s prohibition of the carriage of

butane-powered curling irons in checked baggage is consistent with this provision. In the area of aviation safety, where the high volume of travel and the catastrophic consequences of failure lead to a very low tolerance for risk, we firmly believe the known risks of flammable gas are sufficient basis for our decision. In the NPRM, we solicited public comment on any impact our proposed action may impose upon passengers, crew members, and air operators; however, PHMSA did not receive any comments.

In paragraph (a)(22) of this section, non-infectious specimens transported in accordance with § 173.4b(b) (de minimus quantities) are permitted for carriage by passengers or crewmembers. PHMSA is clarifying this exception to include the phrase “in preservative solutions” to clarify the intended use of this exception. Non-infectious substances would not be subject to the HMR if they did not otherwise meet the definition of any other hazard classes. This clarification signals that the exception refers to specimens in solutions that may contain preservatives that are hazardous materials, such as formaldehyde and alcohol solutions.

Additionally, PHMSA is revising paragraph (a)(24) of this section, which refers to small cartridges of carbon dioxide or other suitable gas of Division 2.2. The exception states that small cartridges fitted into devices with no more than four small cartridges are permitted. This is inconsistent with the ICAO TI, which permits cartridges for other devices indicating that spares are permitted. As § 175.10(a)(24) currently reads, there is no mention of spare cartridges. The HMR currently permits up to four small cartridges, and therefore, PHMSA is revising this paragraph to state that small cartridges fitted into or securely packed with devices with no more than four small cylinders of carbon dioxide or other suitable gas in Division 2.2 are permitted for carriage by passengers or crewmembers. This change harmonizes the exception with international standards to clarify that spares are permitted in addition to the cartridges already fitted into the device, provided they are securely packed with the devices for intended use.

Section 175.75

Section 175.75 describes the quantity limitations and cargo locations for carriage by aircraft. Paragraph (e)(2) excepts packages of hazardous materials transported aboard a cargo aircraft, when other means of transportation are impracticable or not available, in accordance with procedures approved

in writing by the FAA Regional or Field Security Office in the region where the operator is located, from the requirements of paragraphs (c) and (d) of § 175.75. PHMSA is revising this paragraph by removing the word “located” and replacing it with “certificated.” The words “or Field Security” are also removed. This amendment ensures that operators interact with the Hazardous Materials Division Manager (HMDM) who has already reviewed and recommended for approval the certificate’s hazmat-related manual(s) required under FAR § 121.135. The HMDM (or designee) will already have an understanding of the certificate’s operations and, as needed, will interact with the local resources and/or the operator’s certificate management team to assess the impracticability or lack of availability of other cargo operations—as well as what alternative procedures should be prescribed.

Part 176

Section 176.30

Section 176.30 prescribes the information required on dangerous cargo manifests for vessel transport. Paragraph (a)(4) requires “the number and description of packages (e.g., barrels, drums, cylinders, boxes, etc.) and gross weight for each type of packaging.” In this final rule, PHMSA is replacing the word “packaging” with “package,” as the term “packaging” refers to the means of containment and not the completed package.

Part 177

Section 177.834

Section 177.834 establishes general operational requirements for hazardous materials transportation by highway. Section 177.934(i) prescribes attendance requirements for loading and unloading operations. In a final rule published on January 21, 2016 [Docket No. PHMSA–2013–0042 (HM–233F); 81 FR 3635], PHMSA codified DOT Special Permits 9874, 13190, 13424, 13959, 14141, 14150, 14680, 14822, 14827, and 14840 into § 177.834(i) that authorize “attendance” of the loading or unloading of a cargo tank by a qualified person observing all loading or unloading operations by means of video cameras and monitors or instrumentation and signaling systems such as sensors, alarms, and electronic surveillance equipment located at a remote control station. In the same final rule, PHMSA codified DOT Special Permits 13484 and 14447 also into § 177.834(i) that authorize “attendance” of the loading or unloading of a cargo

tank through the use of hoses equipped with cable connected wedges, plungers, or flapper valves located at each end of the hose, able to stop the flow of product from both the source and the receiving tank within one second without human intervention in the event of a hose rupture, disconnection, or separation. The SPs prescribe inspection requirements and operational controls for use of the hoses. In the final rule, however, PHMSA inadvertently omitted the word “or” between each of the four acceptable methods of determining compliance with the attendance requirements adopted by the codification of the 12 special permits. Thus, in this final rule, PHMSA is inserting the word “or” between each acceptable method in § 177.834(i) as proposed in the January 30, 2015 NPRM.

Section 177.848

Section 177.848 addresses segregation requirements for hazardous materials transported by motor carrier. PHMSA received a request for a letter of interpretation (Ref. No. 09–0268) requesting clarification whether “Boosters, 1.1D, UN0042, PG II” and “Ammonium nitrate, 5.1, UN1942, PG III” can be transported in the same vehicle. The requester noted seemingly conflicting requirements in §§ 177.835 and 177.848 applicable to the segregation of ammonium nitrate fertilizer and explosive materials.

Section 177.848(e) provides instructions for using the segregation table in § 177.848(d). Presently, under § 177.848(e)(5) assignment of note “A” authorizes ammonium nitrate (UN1942) and ammonium nitrate fertilizer to be loaded or stored with Division 1.1 or Division 1.5 (explosive) materials. However, § 177.835(c) provides that Division 1.1 or 1.2 (explosive) materials may not be loaded into or carried on any vehicle or a combination of vehicles under certain conditions outlined in paragraphs (c)(1) through (4). PHMSA clarified in the response letter that a Division 1.1 or 1.2 explosive may not be loaded into or carried on any vehicle or a combination of vehicles that does not conform to §§ 177.835(c)(1) through (4), regardless of the note “A” exception for UN1942 in § 177.848(e)(5). In this rulemaking, we are clarifying that the loading restrictions in § 177.835(c)(1) through (4) are applicable to § 177.848(e).

Part 178

Section 178.65

Section 178.65 applies to the manufacture of DOT Specification 39

non-reusable (non-refillable) cylinders. Paragraph (i) of this section describes the required markings for DOT 39 cylinders. The reference to § 178.35(h) in § 178.65(i)(1) is incorrect, as § 178.35(h) was removed under a final rule published July 20, 2011 [Docket No. PHMSA–2009–0151 (HM–218F); 76 FR 43509], which consolidated the inspector’s report requirements found in § 178.35(g) into paragraph (c)(4) of that section, moved the manufacturer’s report retention requirements into paragraph (g) and removed paragraph (h). In this final rule, PHMSA is revising § 178.65(i)(1) to correctly reference the manufacturer’s report requirements in § 178.35(g).

Section 178.337–17

Section 178.337–17 prescribes the marking requirements applicable to MC 331 cargo tank motor vehicles. Paragraph (a) of this section outlines general requirements for marking of MC 331 cargo tank motor vehicles. PHMSA received a request for a letter of interpretation (Ref. No. 04–0206) to clarify the applicability of these markings in § 178.337–17(a). The request pointed out an incorrect use of the term cargo tank as it applies to the requirement for specification plates found in paragraph (a), which states that each cargo tank certified after October 1, 2004 must have a corrosion-resistant metal name plate (ASME Plate) and specification plate permanently attached to the cargo tank by brazing, welding or other suitable means on the left side near the front, in a place accessible for inspection.

In response, we stated that an MC 331 cargo tank must have a metal name plate (also referred to as an ASME plate) permanently attached to the cargo tank. In addition, an MC 331 cargo tank motor vehicle certified after October 1, 2004, must have a specification plate that includes the information specified in § 178.337–17(c). In this final rule, PHMSA is revising § 178.337–17(a) to eliminate confusion of the name plate and specification plate requirements.

Section 178.345–3

Section 178.345–3 prescribes general requirements for the structural integrity of specification cargo tanks. Paragraph (c)(1) of this section addresses stress in the cargo tank shell resulting from normal operating loadings. PHMSA published a final rule on October 2, 2013 [Docket No. PHMSA–2013–0158 (HM–244F); 78 FR 60745; effective October 1, 2013] intending to correct the formula presented in paragraph (c)(1) for the figure “S_s2” to read “SS².” This correction correctly adjusted the

standard “2” in the term to be a superscript “²” but inadvertently adjusted the second “S” from a subscript “s” to a standard “S.” This is incorrect, and in this final rule, PHMSA is revising this portion of the formula in § 178.345–3(c)(1) to read “S_S²”.

Section 178.955

Section 178.955 prescribes the design and testing criteria for Large Packagings. Presently, if a manufacturer of a Large Packaging wishes to construct a Large Packaging that differs from a listed specification, there is no Associate Administrator approval provision outlined in the HMR. However, the HMR alludes to the need for an approval in the Large Packaging marking requirements in § 178.910(a)(1)(ii). The HMR have approval provisions in Part 178 for manufacturers of both non-bulk packagings and IBCs when constructing packagings that differ from listed specifications. In this rulemaking, we are proposing to include provisions consistent with the non-bulk packaging and IBC approval provisions for Large Packagings in § 178.955. Such Large Packagings must be shown to be equally as effective, and the testing methods used must be equivalent. This change resolves the issue with § 178.910(a)(1)(ii) and is consistent with both the UN Model Regulations and the IMDG Code, which prescribe approval provisions for non-bulk packagings, IBCs, and Large Packagings.

Part 179

Section 179.13

Section 179.13 includes limitations on rail tank car capacity and gross weight. With certain exceptions, this section generally limits the gross weight on rail of tank cars to 263,000 pounds. However, this section has been revised numerous times over the last several years. On January 13, 2009 [74 FR 1770], PHMSA added paragraph (b) to this section authorizing tank cars designed to transport poisonous-by-inhalation (PIH) materials and built with certain mandated safety improvements (tank cars meeting the specifications of § 173.244(a)(2) or (3) or § 173.314(c) or (d)) to have a gross weight on rail of up to 286,000 pounds provided any weight increase was not used to increase product capacity. Subsequently, in an effort to incorporate several widely used special permits providing relief from the gross weight limitations of § 179.13, PHMSA revised the section on May 14, 2010 [75 FR 27205], to provide FRA with the authority to approve the operation of tank cars containing materials other than PIH materials at

gross weights of up to 286,000 pounds. FRA published notice of its approvals under this section on January 25, 2011 [76 FR 4250].

In 2011 [76 FR 51324; 51331], noting that the agency’s stated intent in the 2010 rule was to incorporate into the HMR existing special permits related to tank car gross weight for tank cars carrying both non-PIH materials and PIH materials by giving FRA authority to approve tank car weights up to 286,000 pounds for both types of tank cars, PHMSA proposed to revise § 179.13 to correct the omission of PIH material tank cars from FRA’s approval authority. However, when adopted as a final rule on June 25, 2012 [(HM–216B); 77 FR 37962; 37985], the regulatory language did not correct this inadvertent omission. Instead, in the final HM–216B rule, § 179.13 was revised to provide that tank cars designed to transport PIH materials and built with the required safety improvements set forth in § 173.244(a)(2) or (3) or § 173.314(c) or (d) “may have a gross weight on rail of up to 286,000 pounds upon approval by the Associate Administrator for Railroad Safety, FRA.”

As clearly demonstrated by the 2009 and 2010 rules, it was not the intent of either PHMSA or FRA to require FRA approval of tank cars built to the enhanced standards of §§ 173.244(a)(2) or (3) or 173.314(c) or (d) for those cars to operate at a gross rail load of 286,000 pounds. Accordingly, in this final rule PHMSA is revising § 179.13 to correct this error by (1) making it clear that tank cars containing PIH materials built to the enhanced standards of § 173.244(a)(2) or (3) or § 173.314(c) or (d) do not need FRA approval to operate at gross rail loads of up to 286,000 pounds and (2) providing for FRA approval of tank cars containing PIH materials that do not meet the enhanced standards to operate at gross rail loads of up to 286,000 pounds. PHMSA received one comment from The Chlorine Institute in support of this revision.

Part 180

Section 180.209

Section 180.209 prescribes requalification requirements for DOT specification cylinders. Paragraph (j) contains a reference to an obsolete special provision. In a January 7, 2013 final rule [Docket No. PHMSA–2009–0126 (HM–215K); 78 FR 1101], we removed and relocated regulatory text from § 172.102(c)(1) Special Provision 18 to § 173.309(a), which prescribes the conditions when specification cylinders may be described, offered, and

transported in commerce as fire extinguishers. In relocating the text, PHMSA did not update this section to reflect the change. In this final rule, we are correcting this inconsistency by replacing the reference to § 172.102(c)(1) Special Provision 18 with § 173.309(a).

V. Regulatory Analyses and Notices

A. Statutory/Legal Authority for This Rulemaking

The Federal Hazardous Materials Transportation Law (49 U.S.C. 5101–5128) authorizes the Secretary of Transportation (Secretary) to “prescribe regulations for the safe transportation, including security, of hazardous material in intrastate, interstate, and foreign commerce.” The Secretary delegated this authority to PHMSA in 49 CFR 1.97(b). If adopted as proposed, this final rule would make miscellaneous amendments to the HMR, correct errors in the § 172.101 HMT and corresponding special provisions, and respond to NTSB Safety Recommendations related to the safe transportation of manifolded acetylene cylinders.

Additionally, this final rule will respond to petitions for rulemaking related to the allowable format for emergency telephone numbers on shipping papers; relax the pressure test interval for certain cargo tanks in dedicated propane service; enhance the safe packaging for nitric acid; clarify the testing requirements for specification cargo tank pressure relief devices; harmonize the hazard communication requirements for poisonous-by-inhalation materials transported by vessel; and eliminate a potentially confusing packing group designation for certain organic peroxides, self-reactive materials, and explosives. These amendments clarify regulatory requirements and, where appropriate, decrease the regulatory burden without compromising the safe transportation of hazardous materials in commerce.

B. Executive Order 12866, Executive Order 13563, and DOT Regulatory Policies and Procedures

This final rule is not considered a significant regulatory action within the meaning of Executive Order 12866 (“Regulatory Planning and Review”) and the Regulatory Policies and Procedures of the Department of Transportation [44 FR 11034].

In this final rule, we amend miscellaneous provisions in the HMR for clarification and relaxation of overly burdensome requirements, with the intent of, thereby, increasing voluntary compliance while reducing compliance

costs. As a result, PHMSA anticipates the amendments contained in this rule will have economic benefits to the regulated community. Executive Order 13563 (“Improving Regulation and Regulatory Review”) is supplemental to and reaffirms the principles, structures, and definitions governing regulatory review that were established in Executive Order 12866 (“Regulatory Planning and Review”) of September 30, 1993. In addition, Executive Order 13563 specifically requires agencies to: (1) Involve the public in the regulatory process; (2) promote simplification and harmonization through interagency coordination; (3) identify and consider regulatory approaches that reduce burden and maintain flexibility; (4) ensure the objectivity of any scientific or technological information used to support regulatory action; and (5) consider how to best promote retrospective analysis to modify, streamline, expand, or repeal existing rules that are outmoded, ineffective, insufficient, or excessively burdensome.

In this final rule, PHMSA has involved the public in the regulatory process in a variety of ways: Specifically, PHMSA is addressing issues and errors that were identified for future rulemaking both through letters of interpretation and other correspondence with PHMSA stakeholders who brought editorial errors in the HMR to our attention. In addition, PHMSA has responded to seven petitions for rulemaking and two NTSB Safety Recommendations. PHMSA asked for public comments based on the proposals in this NPRM, and upon receipt of public comment, PHMSA has addressed all substantive comments in this rulemaking action.

The amendments in the final rule promote simplification and harmonization through interagency coordination. In this final rule, PHMSA is revising 49 CFR part 175, in a collaborative effort with the Federal Aviation Administration (FAA), to: clarify the applicability of the HMR to certain aircraft operators, clarify exceptions for passengers and crewmembers, correct inaccurate references to title 14 of the CFR, and make minor editorial corrections applicable to air operations to improve overall clarity. There are minimal additional costs associated with these proposals; however, increased clarity will result in net benefits.

This final rule also promotes harmonization with international standards, such as the IMDG Code, Canada’s TDG requirements, and the ICAO TI. These efforts include:

- Harmonizing hazard communication for poisonous-by-inhalation materials with the IMDG Code and TDG regulations;
- Removing the packing group II designation for certain organic peroxides, self-reactive substances, and explosives to be consistent with the UN Recommendations, IMDG Code, and ICAO TI, thus facilitating international transport;
- Harmonizing entries in the HMT with the above listed international standards;
- Revising the passenger exceptions applicable to small cartridges containing Division 2.2 gas with the ICAO TI;
- Harmonizing the excepted quantities requirements to mirror language employed in the ICAO TI as they apply to articles.

These revisions to the § 172.101 HMT will eliminate errors, reduce ambiguity, harmonize the HMR with international regulations, and improve clarity. Although these revisions are minor, they are expected to produce a safety benefit derived from the increased clarity and accuracy of the text in the § 172.101 HMT.

This final rule permits flexibility in achieving compliance when transporting damaged wet electric storage batteries; extends the requalification interval for certain MC 331 cargo tanks in dedicated propane service from five years to ten years for a pressure test and internal visual inspection, therefore, fostering greater regulatory flexibility without compromising transportation safety; clarifies the regulations to provide flexibility in the ability to use the “NOT-ODORIZED” or “NON-ODORIZED” marking on cargo tanks, cylinders, and portable tanks containing odorized or unodorized LPG. Additionally, by allowing 100 pounds of black or smokeless powder for small arms reclassified as Division 4.1 in each transport vehicle, instead of each motor vehicle, the regulated community can reduce the number of motor vehicles needed to transport these goods.

Where PHMSA identified potential costs to stakeholders, specific comment was requested to clarify such costs. We requested and responded to specific comments on potential cost impacts of the proposals in § 172.604.

A majority of the amendments in this rulemaking are simple clarifications and do not require significant scientific or technological information. However, when necessary in this final rule, PHMSA used scientific or technological information to support its regulatory action. Specifically, such data was considered when structuring

alternatives on how to best deal with issues regarding the testing of pressure relief devices for cargo tank motor vehicles, as well as with issues regarding the extension of the pressure test and internal visual inspection test interval from five to ten years for certain MC 331 cargo tanks in dedicated propane delivery service. This information was used in the evaluation of alternative proposals, and ultimately this information determined how best to promote retrospective analysis to modify and streamline existing requirements that are outmoded, ineffective, insufficient, or excessively burdensome.

C. Executive Order 13132

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132 (“Federalism”). This final rule would preempt State, local, and Indian tribe requirements but does not propose any regulation that has substantial direct effects on the states, the relationship between the national government and the states, or the distribution of power and responsibilities among the various levels of government. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

The Federal Hazardous Material Transportation Law, 49 U.S.C. 5125(b)(1), contains an express preemption provision (49 U.S.C. 5125(b)) preempting State, local, and Indian tribe requirements on certain covered subjects. Covered subjects are as follows:

- (i) The designation, description, and classification of hazardous materials;
- (ii) The packing, repacking, handling, labeling, marking, and placarding of hazardous materials;
- (iii) The preparation, execution, and use of shipping documents related to hazardous materials and requirements related to the number, content, and placement of those documents;
- (iv) The written notification, recording, and reporting of the unintentional release in transportation of hazardous materials;
- (v) The design, manufacture, fabrication, marking, maintenance, reconditioning, repair, or testing of a packaging or container which is represented, marked, certified, or sold as qualified for use in the transport of hazardous materials.

This final rule concerns the classification, packaging, and handling of hazardous materials, among other covered subjects. If adopted, this rule would preempt any State, local, or Indian tribe requirements concerning

these subjects unless the non-Federal requirements are “substantively the same” (See 49 CFR 107.202(d) the Federal requirements.)

The Federal Hazardous Materials Transportation Law provides at 49 U.S.C. 5125(b)(2) that if PHMSA issues a regulation concerning any of the covered subjects, PHMSA must determine and publish in the **Federal Register** the effective date of Federal preemption. That effective date may not be earlier than the 90th day following the date of issuance of the final rule and not later than two years after the date of issuance. The effective date of Federal preemption will be 90 days from publication of a final rule on this matter in the **Federal Register**.

D. Executive Order 13175

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13175 (“Consultation and Coordination with Indian Tribal Governments”). Because this final rule does not have tribal implications and does not impose substantial direct compliance costs on Indian tribal governments, the funding and consultation requirements of Executive Order 13175 do not apply and a tribal summary impact statement is not required.

E. Regulatory Flexibility Act, Executive Order 13272, and DOT Procedures and Policies

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires an agency to review regulations to assess their impact on small entities unless the agency determines the rule is not expected to have a significant impact on a substantial number of small entities. In addition, the Regulatory Flexibility Act directs agencies to establish exceptions and differing compliance standards for small businesses, where it is possible to do so while still meeting the objectives of applicable regulatory statutes. However, in the case of hazardous materials transportation, it is not possible to establish exceptions or differing standards and still accomplish our safety objectives.

As this final rule would clarify provisions based on PHMSA’s initiatives and correspondence with the regulated community, the impact that it will have on small entities is not expected to be significant. The changes are generally intended to provide relief and, as a result, marginal positive economic benefits to shippers, carriers, and packaging manufacturers and testers, including small entities. These benefits are not at a level that can be considered economically significant. Consequently,

this final rule will not have a significant economic impact on a substantial number of small entities.

This final rule has been developed in accordance with Executive Order 13272 (“Proper Consideration of Small Entities in Agency Rulemaking”) and DOT’s Procedures and Policies to promote compliance with the Regulatory Flexibility Act to ensure that potential impacts of draft rules on small entities are properly considered.

F. Paperwork Reduction Act

PHMSA currently has an approved information collection under Office of Management and Budget (OMB) Control Number 2137–0557, entitled “Approvals for Hazardous Materials.” This final rule does not make any changes that would affect the burden for this or any other information collection.

Prior to the publication of a final rule entitled “Hazardous Materials: Revisions to Fireworks Regulation” published in the **Federal Register** on July 6, 2013 [Docket No. PHMSA–2010–0320 (HM–257); 78 FR 42457], the HMR contained a requirement that all certification agencies provide a statement confirming that it would perform its functions independent of the owners and manufacturers of the packagings in its field. The burden for this requirement was accounted for under OMB Control Number 2137–0557. However, the HM–257 final rule inadvertently removed this language from the HMR. Therefore, in this final rule, PHMSA is reinserting the language for certification agencies to confirm that they are independent and not owned by a company in its field. For ease of the reader, this language is to be inserted as follows:

- PHMSA is revising § 107.402(f) to require that a portable tank and MEGC certification agency submit a statement indicating that the agency is independent of and not owned by a portable tank or MEGC manufacturer, owner, or distributor as part of the Portable tank and MEGC Certification Agency application.
- PHMSA is revising § 107.402(e) to require that a lighter certification agency submit a statement that the agency is independent of and not owned by a lighter manufacturer, distributor, import or export company, or proprietorship as part of the Lighter Certification Agency application.
- PHMSA is revising § 107.807 to require that a person who seeks to manufacture DOT specification cylinders and special permit cylinders, or perform chemical analysis and tests of those cylinders outside the United States submits a statement, as part of the

application, indicating that the inspection agency is independent of and not owned by a cylinder manufacturer, owner, or distributor.

G. Regulation Identifier Number (RIN)

A regulation identifier number (RIN) is assigned to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. The RIN number contained in the heading of this document can be used to cross-reference this action with the Unified Agenda.

H. Unfunded Mandates Reform Act

This final rule does not impose unfunded mandates under the Unfunded Mandates Reform Act of 1995. It does not result in costs of \$141,300,000 or more to either State, local, or tribal governments, in the aggregate, or to the private sector, and it is the least burdensome alternative that achieves the objective of the rule.

I. Environmental Assessment

The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321–4375, requires that Federal agencies analyze proposed actions to determine whether the action will have a significant impact on the human environment. In accordance with the Council on Environmental Quality (CEQ) regulations (40 CFR parts 1500–1508), which implement NEPA, an agency may prepare an Environmental Assessment (EA) when it does not anticipate that the final action will have significant environmental effects. They must consider the following: (1) The need for the proposed action, (2) alternatives to the proposed action, (3) probable environmental impacts of the proposed action and alternatives, and (4) the agencies and persons consulted during the consideration process (40 CFR 1508.9(b)).

1. Purpose and Need

The purpose of this final rule is to amend the Hazardous Materials Regulations (HMR; 49 CFR parts 171–180) by making miscellaneous revisions to update and clarify certain regulatory requirements, to respond to seven petitions for rulemaking submitted to PHMSA by various stakeholders, and to address two NTSB recommendations. These amendments, which were identified through an internal review of the HMR as well as in response to communications with various stakeholders, are intended to promote safety, regulatory relief, and clarity. This action is necessary in order to: (1) Fulfill

our statutory directive to promote transportation safety; (2) fulfill our statutory directive under the Administrative Procedure Act (APA) that requires Federal agencies to give interested persons the right to petition an agency to issue, amend, or repeal a rule (5 U.S.C. 553(e)); (3) support governmental efforts to provide regulatory relief to the regulated community; (4) address safety concerns raised by the NTSB and remove regulatory ambiguity identified by the regulated community; and (5) simplify and clarify the regulations in order to promote understanding and compliance.

The intended effect of this action is to enhance the safe transportation of hazardous materials and, in conjunction, clarify, simplify, and relax certain regulatory requirements for carriers, shippers, and other stakeholders. These regulatory revisions will offer more efficient and effective ways of achieving safe and secure transportation of hazardous materials in commerce.

2. Alternatives

The alternatives considered in this Environmental Assessment include the following:

Alternative 1: No Action

Alternative 1 would not result in any rulemakings on this subject, leaving the current regulatory standards to remain in effect. As a result, this option would not address outstanding petitions for rulemaking or NTSB Safety Recommendations. While this alternative would not impose any new costs or change any environmental impacts, neither would it account for the outstanding petitions for rulemaking, NTSB Safety Recommendations, and regulatory concerns reviewed by PHMSA; thus, we have rejected the no action alternative.

Alternative 2: Go Forward With the Proposed Amendments to the HMR in This NPRM

Alternative 2 revises the HMR as proposed in the NPRM and, accounting for public comment, applies to transportation of hazardous materials by various modes (highway, rail, vessel and aircraft). The amendments encompassed in this alternative are more fully addressed in the preamble and regulatory text sections. However, they generally include the following changes to the HMR, grouped below for ease of discussion:

Incorporation by Reference and Use of International Standards:

- Remove the entry for CGA Publication C-1.1 in Table 1 to § 171.7

- Incorporate by reference in § 171.7 CGA Publication G-1.6, *Standard for Mobile Acetylene Trailer Systems*, Seventh Edition (responds to petition P-1605 and two NTSB Safety Recommendations, H-09-01 and H-09-02).

- Amend § 171.7(k) to include §§ 179.24 and 180.503.

- Amend the marking requirements for poisonous-by-inhalation shipments transported in accordance with the IMDG Code or TDG Regulations (responds to petition for rulemaking P-1591).

§ 172.101 Hazardous Materials Table and § 172.102 Special Provisions:

- Remove the Packing Group (PG) II designation for certain organic peroxides, self-reactive substances and explosives (responds to petition for rulemaking P-1590).

- Revise the § 172.101 table to add Special Provision B120 to Column 7 for the entry “Calcium nitrate, UN1454.”
- Revise the entry for “Propellant, solid, UN0501” to remove vessel stowage provision 24E from Column (10B) of the HMT.

- Revise the PG II HMT entry for “Corrosive liquids, flammable, n.o.s., UN2920,” to harmonize the HMR with the UN Model Regulations, IMDG Code, and the ICAO TI by adding a reference to § 173.154 to Column (8A) of the HMT.

- Revise the entry for “Oxidizing solid, corrosive, n.o.s., UN3085, PG II” to harmonize the HMR with the UN Model Regulations, the IMDG Code, and the ICAO TI by adding a reference to § 173.152 to Column (8A) of the HMT.

- Revise the HMT entries for “Trinitrophenol (picric acid), wetted, with not less than 10 percent water by mass, UN3364” and “Trinitrophenol, wetted with not less than 30 percent water, by mass, UN1344” to harmonize the HMR with the UN Model Regulations, IMDG Code, and the ICAO TI to clarify that the 500 gram limit per package does not apply to UN1344 but does apply to UN3364.

- Revise Special Provision 136, for Dangerous goods in machinery or apparatus, in § 172.102 to include reference to Subpart G of Part 173.

- Remove the reference to obsolete Special Provision 18 in the HMT entry “Fire extinguishers, UN1044,” and in § 180.209(j).

Hazard Communication (Marking, Labeling, Placarding, Emergency Response):

- Correct a reference in § 172.201 to exceptions for the requirement to provide an emergency response telephone number on a shipping paper.

- Revise §§ 172.301(f), 172.326(d), and 172.328(e) to include the clarification that the “NOT-ODORIZED” or “NON-ODORIZED” marking may appear on packagings used for both unodorized and odorized LPG, and remove the effective date of October 1, 2006, if it appears these paragraphs, as the effective date has passed.

- Amend § 172.406(d) by expressly authorizing the use of labels described in subpart E with a dotted or solid line outer border on a surface background of contrasting color.

- Amend the address in § 172.407(d)(4)(ii) to read Standards and Rulemaking Division, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, 2nd Floor, East Building, 1200 New Jersey Avenue SE., Washington, DC 20590-0001.

- Clarify the marking size requirements for an IBC that is labeled instead of placarded by replacing the bulk package marking reference in § 172.514(c) with the non-bulk marking reference, § 172.301(a)(1).

- Require that emergency response telephone numbers be displayed on shipping papers numerically (responds to petition for rulemaking P-1597).

Shipper Requirements:

- Revise § 173.4a(a) to clarify that articles (including aerosols) are not eligible for excepted quantity reclassification under § 173.4a, although some are eligible to be shipped as small quantities by highway and rail in § 173.4.

- Clarify that the requirements provided in paragraph § 173.24a(c)(1)(iv) do not apply to limited quantities packaged in accordance with § 173.27(f)(2).

- Clarify the quantity limits for mixed contents packages prepared in accordance with § 173.27(f)(2).

- Clarify the requirements applicable to bulk transportation of combustible liquids by adding § 173.150(f)(3)(xi) stating that the registration requirements in subpart G of part 107 is applicable and revising § 173.150(f)(3)(ix) and (x) for punctuation applicable to a listing of requirements.

- Require that certain shipments of nitric acid utilizing glass inner packagings be contained in intermediate packaging (responds to petition for rulemaking P-1601).

- Add a new paragraph (k) in § 173.159 to address the need for provisions that allow shippers to prepare for transport and offer into transportation damaged wet electric storage batteries.

- Revise § 173.166(e)(6) to add the words “or cargo vessel.”

- Revise §§ 173.170 and 173.171 by changing the term “motor vehicle” to “transport vehicle” to allow for motor vehicles comprised of more than one cargo-carrying body to carry 100 pounds of black or smokeless powder reclassified as Division 4.1 in each cargo-carrying body instead of 100 pounds total in the motor vehicle.

- Revise the provisions in § 173.199(a)(4) by removing the reference to the steel rod impact test in § 178.609(h).

- Amend the bulk packaging section reference in Column (8C) of the HMT from § 173.240 to § 173.216 for the entries NA2212, UN2212, and UN2590. In addition, we are proposing to revise paragraph (c)(1) in § 173.216 by authorizing the use of bulk packages prescribed in § 173.240.

- Amend § 173.306(k) to clarify that aerosols shipped for recycling or disposal by motor vehicle containing a limited quantity are afforded the applicable exceptions provided for ORM-D materials granted under §§ 173.306(i) and 173.156(b).

Modal Requirements (Air, Vessel, and Highway):

- Create a new paragraph (d) in § 175.1, stating that this subchapter does not apply to dedicated air ambulance, firefighting, or search and rescue operations.

- Correct § 175.8 by adding the appropriate 14 CFR part 125 citations.

- Clarify exceptions for passengers, crewmembers, and air operators in paragraphs (a)(18), (22), and (24) of § 175.10.

- Clarify § 175.75(e)(2) by replacing the word “located” with “certificated.”

- Clarify § 176.30(a)(4) by replacing the word “packaging” with “package.”

- Clarify that the loading restrictions in § 177.835(c)(1) through (4) area applicable to § 177.848(e).

Packaging design and requalification:

- Clarify § 178.337–17(a) to eliminate confusion of the name plate and specification plate requirements.

- Correct an inadvertent editorial error in the formula in § 178.345–3(c)(1).

- Include provisions consistent with the non-bulk packaging and IBC approval provisions for Large Packagings in § 178.955.

- Extend the pressure test and internal visual inspection test interval to ten years for certain MC 331 cargo tanks in dedicated propane delivery service (responds to petition for rulemaking P–1604).

- Clarify the requirements applicable to the testing of pressure relief devices for cargo tank motor vehicles (responds to petition for rulemaking P–1609).

1. Probable Environmental Impacts of the Alternatives

Hazardous materials are substances that may pose a threat to public safety or the environment during transportation because of their physical, chemical, or nuclear properties. Under the HMR, hazardous materials are transported by aircraft, vessel, rail, and highway. The potential for environmental damage or contamination exists when packages of hazardous materials are involved in accidents or en route incidents resulting from cargo shifts, valve failures, package failures, loading, unloading, collisions, handling problems, or deliberate sabotage. The release of hazardous materials can cause the loss of ecological resources (e.g. wildlife habitats) and the contamination of air, aquatic environments, and soil.

When developing potential regulatory requirements, PHMSA evaluates those requirements to consider the environmental impact of each amendment. Specifically, PHMSA evaluates the following: The risk of release of hazmat and resulting environmental impact; the risk to human safety, including any risk to first responders; the longevity of the packaging; and the circumstances in which the regulations would be carried out (i.e., the defined geographic area, the resources, any sensitive areas) and how they could thus be impacted.

PHMSA has determined that most of the regulatory changes proposed in this rulemaking are editorial in nature. As such, these amendments have no impact on the risk of release and resulting environmental impact, human safety, longevity of the packaging, and none of these amendments would be carried out in a defined geographic area. General possible environmental benefits, and detriments, are discussed below.

Alternative 1

The no-action alternative would result in no changes. The current regulations would remain in place, and no new provisions would be added. However, this option would not address outstanding petitions for rulemaking, NTSB Safety Recommendations or consider amendments based on PHMSA’s own initiatives intended to update, clarify, or provide relief from certain existing regulatory requirements. Foregone efficiencies in the Alternative 1 also include freeing up limited resources to concentrate on hazardous materials transportation issues of potentially much greater environmental impact.

Not adopting the proposed environmental and safety requirements

in the final rule under the Alternative 1 would result in a lost opportunity for reducing environmental and safety-related incidents.

In addition, greenhouse gas emissions would remain the same under the Alternative 1.

Alternative 2

If PHMSA selects the provisions as amended in this final rule, we believe that safety and environmental risks would be reduced and that protections to human health and environmental resources would be increased.

Alternative 2 will enhance environmental protection through more targeted and effective training. This set of amendments will eliminate inconsistent hazardous materials regulations, which hamper compliance training efforts. By maintaining consistency between these international regulations and the HMR, shippers and carriers are able to train their hazardous materials employees in a single set of requirements for classification, packaging, hazard communication, handling, and stowage, thereby minimizing the possibility of improperly preparing and transporting a shipment of hazardous materials because of differences between domestic and international regulations.

In addition, Alternative 2 will create more streamlined hazardous regulations, resulting in compliance training efforts which facilitate the regulated community’s ability to comply with the HMR. Potential environmental impacts of each group of amendments in Alternative 2 (selected for this final rule) are discussed individually below:

Incorporation by Reference and Use of International Standards:

PHMSA believes that this set of amendments, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. Consistency between U.S. and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from origin to destination, and consistent emergency response in the event of a hazardous materials incident. Incorporation of the *CGA Publication G–1.6, Standard for Mobile Acetylene Trailer Systems*, will mitigate acetylene release and enhance environmental protection during overturn incidents and unloading.

Current greenhouse gas emissions would be unaffected under this proposed set of amendments.

§ 172.101 Hazardous Materials Table and § 172.102 Special Provisions:

PHMSA believes that this set of amendments, which will increase standardization and consistency of regulations, will result in greater protection of human health and the environment. As previously stated, consistency between U.S. and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident. New and revised entries to the HMT reflect emerging technologies and the need to better describe or differentiate between existing entries. These changes mirror those in the Dangerous Goods list of The 18th Revised Edition of the UN Model Regulations, the 2013–2014 ICAO TI and the 37–14 amendments to the IMDG Code. It is extremely important for the domestic HMR to mirror the UN Model Regulations, the ICAO TI, and the IMDG Code with respect to the entries in the HMT to ensure consistent naming conventions across modes and international borders.

The packing group assignment reflects a degree of danger associated with a particular material and identifies appropriate packaging. However, assignment of a packing group is not appropriate in all cases (e.g. explosives, gases, radioactive material). In such cases the packing group does not indicate a degree of danger, and the packaging requirements for those materials are specified in the appropriate section in part 173. The change to eliminate a packing group designation for materials classified as explosives and organic peroxides specifically listed in the HMT provides a level of consistency, without diminishing environmental protection and safety.

Current greenhouse gas emissions would be unaffected under this set of amendments.

Hazard Communication (Marking, Labeling, Placarding, Emergency Response):

PHMSA believes that this set of amendments, which will provide for enhanced hazard communication (hazcom), will result in greater protection of human health and the

environment. The proposed changes communicate the nature of various specialized packaging configurations to package handlers and emergency responders. The amendments would ensure that hazard markings are visible, universally recognizable, and that they contain all information needed by emergency responders, thus resulting in fewer incidents with impacts to the environment and safety.

Similar to the above sets of amendments, PHMSA believes consistency between U.S. and international regulations enhances the safety and environmental protection of international hazardous materials transportation through better understanding of the regulations, an increased level of industry compliance, the smooth flow of hazardous materials from their points of origin to their points of destination, and consistent emergency response in the event of a hazardous materials incident.

Current greenhouse gas emissions would be unaffected under this proposed set of amendments.

Shipper Requirements:

PHMSA believes that this amendment, which will revise, clarify and enhance current regulations, will result in greater protection of human health and the environment. Shippers and transporters of hazardous materials will more easily be able to comply with the HMR through regulations that are easier to understand and more streamlined.

Specific to this set of amendments, improving the packaging requirements applicable to glass packages of nitric acid reduces the occurrences of fires caused by broken inner containers and enhances human health and environmental protection. PHMSA believes that the additional intermediate packaging required by this particular amendment will add another layer of protection in preventing breakage, leakage, and fires. Additionally, this particular amendment creates a more streamlined and efficient HMR through incorporation of a petition for rulemaking (P–1601), which allows both regulators and the regulated community to target limited resources at the most pressing hazmat compliance issues.

Current greenhouse gas emissions would be unaffected under this proposed set of amendments.

Modal Requirements (Air, Vessel, and Highway):

PHMSA believes that this amendment, which will revise, clarify, and enhance current regulations, will result in greater protection of human health and the environment. Air, vessel, and highway shippers and transporters

of hazardous materials will more easily be able to comply with the HMR through regulations that are easier to understand and more streamlined. Additionally, the revisions include emphasis being placed in areas requiring more attention.

Current greenhouse gas emissions would be unaffected under this proposed set of amendments.

Packaging Design and Requalification:

PHMSA believes that this amendment, which will revise, clarify, and enhance current regulations, will result in greater protection of human health and the environment. Shippers and transporters of hazardous materials will more easily be able to comply with the HMR through regulations which are easier to understand and more streamlined. Additionally, the revisions include emphasis being placed in areas requiring more attention.

Specific to this set of amendments, decreasing the required frequency for pressure testing and visual inspection of certain cargo tanks in dedicated propane service by extending the requalification period from five years to ten years will ease the burden on regulators and the regulated community. This test, which requires significant equipment downtime and man-hours to perform, has been shown to achieve no additional safety or environmental protection when performed at a five- versus a ten-year interval. In addition, pressure testing requires a significant amount of water usage. Decreasing the testing frequency by half will result in significant volumes of water being conserved. Additionally, this particular amendment creates a more streamlined and efficient HMR through incorporation of a petition for rulemaking (P–1609). A more streamlined and efficient HMR allows both regulators and the regulated community to target limited resources at the most pressing hazmat compliance issues.

Current greenhouse gas emissions would be unaffected under these amendments.

1. Agencies Consulted

This final rule would affect some PHMSA stakeholders, including hazardous materials shippers and carriers by highway, rail, vessel, and aircraft, as well as package manufacturers and testers. PHMSA sought comment on the environmental assessment contained in the NPRM. In addition, PHMSA specifically coordinated with the following Federal agencies and modal partners:

- Department of Justice

- Environmental Protection Agency
- Health and Human Services
- Occupational Safety and Health Administration
- Federal Aviation Administration
- Federal Motor Carrier Safety Administration
- Federal Railroad Administration
- United States Coast Guard

2. Conclusion

PHMSA is adopting miscellaneous amendments to the HMR based on comments from the regulated community, NTSB recommendations, and PHMSA's own rulemaking initiatives. The amendments are intended to update, clarify, or provide relief from certain existing regulatory requirements to promote safer transportation practices; eliminate unnecessary regulatory requirements; facilitate international commerce; and make these requirements easier to understand. These clarifications of regulatory requirements will foster a greater level of compliance with the HMR and, thus, diminish levels of hazardous materials transportation incidents affecting the health and safety of the environment. Therefore, the net environmental impact of this proposal will be positive.

J. Privacy Act

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. The DOT posts these comments, without edit, including any personal information the commenter provides, to www.regulations.gov. The electronic form of these written communications and comments can be searched by the name of the individual submitting the document (or signing the document, if submitted on behalf of an association, business, labor union, etc.). The DOT's complete Privacy Act Statement is available at <http://www.dot.gov/privacy>.

K. International Trade Analysis

The Trade Agreements Act of 1979 (Pub. L. 96-39), as amended by the Uruguay Round Agreements Act (Pub. L. 103-465), prohibits Federal agencies from establishing any standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, establishing standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standards have a legitimate domestic objective, such as the protection of safety, and do not operate in a manner that excludes imports that meet this objective. This statute also

requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. PHMSA notes the purpose is to ensure the safety of the American public and has assessed the effects of this rule to ensure that it does not exclude imports that meet this objective. As a result, this final rule is not considered as creating an unnecessary obstacle to foreign commerce.

List of Subjects

49 CFR Part 107

Administrative practice and procedure, Hazardous materials transportation, Penalties, Reporting and recordkeeping requirements.

49 CFR Part 171

Exports, Hazardous materials transportation, Hazardous waste, Imports, Incorporation by reference, Reporting and recordkeeping requirements.

49 CFR Part 172

Education, Hazardous materials transportation, Hazardous waste, Labeling, Markings, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 173

Hazardous materials transportation, Incorporation by reference, Packaging and containers, Radioactive materials, Reporting and recordkeeping requirements, Uranium.

49 CFR Part 175

Air carriers, Hazardous materials transportation, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 176

Hazardous materials transportation, Maritime carriers, Radioactive materials, Reporting and recordkeeping requirements.

49 CFR Part 177

Hazardous materials transportation, Loading and unloading, Segregation and separation.

49 CFR Part 178

Hazardous materials transportation, Motor vehicle safety, Packaging and containers, Reporting and recordkeeping requirements.

49 CFR Part 179

Hazardous materials transportation, Incorporation by reference, Railroad safety, Reporting and recordkeeping requirements.

49 CFR Part 180

Hazardous materials transportation, Incorporation by reference, Motor carriers, Motor vehicle safety, Packaging and containers, Railroad safety, Reporting and recordkeeping requirements.

In consideration of the foregoing, we amend 49 CFR chapter I as follows:

PART 107—HAZARDOUS MATERIALS PROGRAM PROCEDURES

■ 1. The authority citation for part 107 continues to read as follows:

Authority: 49 U.S.C. 5101–5128, 44701; Pub. L. 101–410 section 4 (28 U.S.C. 2461 note); Pub. L. 104–121 sections 212–213; Pub. L. 104–134 section 31001; Pub. L. 112–141 section 33006; 49 CFR 1.81 and 1.97.

■ 2. In § 107.402, revise paragraphs (d)(1)(i), (e), and (f) to read as follows:

§ 107.402 Application for designation as a certification agency.

* * * * *

(d) * * *

(1) * * *

(i) Be a U.S. resident, or for a non-U.S. resident, have a designated U.S. agent representative as specified in § 105.40 of this subchapter;

* * * * *

(e) *Lighter certification agency.* Prior to examining and testing lighters (UN1057) for certification of compliance with the requirements of § 173.308 of this chapter a person must submit an application to, and be approved by, the Associate Administrator to act as a lighter certification agency. In addition to paragraph (b) of this section, the application must include the following information:

(1) The name and address of each facility where lighters are examined and tested;

(2) A detailed description of the applicant's qualifications and ability to, examine and test lighters and certify that the requirements specified by § 173.308 of this chapter have been met; and

(3) A statement that the agency is independent of and not owned by a lighter manufacturer, distributor, import or export company, or proprietorship.

(f) *Portable tank and MEGC certification agencies.* Prior to inspecting portable tanks or multi-element gas containers (MEGCs) for certification of compliance with the requirements of §§ 178.273 and 178.74 of this chapter, respectively, a person must submit an application to, and be approved by, the Associate Administrator to act as a certification agency. In addition to paragraph (b) of

this section, the application must provide the following information:

(1) The name and address of each facility where the portable tank or MEGC, as applicable, is examined and tested;

(2) A detailed description of the applicant's qualifications and ability to examine and test portable tanks or MEGCs, as applicable, and certify that the requirements specified by § 178.273 of this chapter for the approval of UN portable tanks, or § 178.74 of this chapter for the approval of MEGCs have been met; and

(3) A statement indicating that the agency is independent of and not owned by a portable tank or MEGC manufacturer, owner, or distributor.

■ 3. In § 107.807, revise paragraph (b)(3) to read as follows:

§ 107.807 Approval of non-domestic chemical analyses and tests.

* * * * *

(b) * * *

(3) The name of the independent inspection agency to be used to certify the analyses and tests and a statement from the agency indicating that it is independent of and not owned by a cylinder manufacturer, owner, or distributor; and

* * * * *

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

■ 4. The authority citation for part 171 continues to read as follows:

Authority: 49 U.S.C. 5101–5128, 44701; Pub. L. 101–410, section 4 (28 U.S.C. 2461 note); Pub. L. 104–121, sections 212–213; Pub. L. 104–134, section 31001; 49 CFR 1.81 and 1.97.

■ 5. In § 171.7:

■ a. Revise paragraph (k)(1);

■ b. Redesignate paragraphs (n)(13) through (21) as paragraphs (n)(14) through (22), respectively, and add new paragraph (n)(13); and

■ c. In Table 1 to 49 CFR 171.7, remove the entry for “Compressed Gas Association, Inc., 4221 Walney Road, 5th Floor, Chantilly, Virginia 20151” and the associated entry for document “CGA C–1.1, Personnel Training and Certification Guidelines for Cylinder Requalification By the Volumetric Expansion Method, 2004, First Edition”.

The revision and addition read as follows:

§ 171.7 Reference material.

* * * * *

(k) * * *

(1) AAR Manual of Standards and Recommended Practices, Section C—Part III, Specifications for Tank Cars, Specification M–1002, (AAR Specifications for Tank Cars), December 2000, §§ 173.31; 179.6; 179.7; 179.15; 179.16; 179.20; 179.22; 179.24; 179.100–9; 179.100–10; 179.100–12; 179.100–13; 179.100–14; 179.100–18; 179.101–1; 179.102–1; 179.102–4; 179.102–17; 179.103–5; 179.200–7; 179.200–9; 179.200–10; 179.200–11; 179.200–13; 179.200–17; 179.200–22; 179.201–6; 179.220–6; 179.220–7; 179.220–10; 179.220–11; 179.220–14; 179.220–18; 179.220–26; 179.300–9; 179.300–10; 179.300–15; 179.300–17; 179.400–5; 179.400–6; 179.400–8; 179.400–11; 179.400–12; 179.400–15; 179.400–18; 179.400–20; 179.400–25; 180.503; 180.509; 180.513; 180.515; 180.517.

* * * * *

(n) * * *

(13) CGA G–1.6–2011, Standard for Mobile Acetylene Trailer Systems, Seventh Edition, copyright 2011, into § 173.301.

* * * * *

■ 6. In § 171.22, revise paragraph (f)(1) to read as follows:

§ 171.22 Authorization and conditions for the use of international standards and regulations.

* * * * *

(f) *Complete information and certification.* (1) Except for shipments into the United States from Canada conforming to § 171.12, each person importing a hazardous material into the United States must provide the shipper, and the forwarding agent at the place of entry into the United States, timely and complete written information as to the requirements of this subchapter applicable to the particular shipment.

* * * * *

■ 7. In § 171.23, paragraphs (b)(10)(iv)(A) and (B) are revised to read as follows:

§ 171.23 Requirements for specific materials and packagings transported under the ICAO Technical Instructions, IMDG Code, Transport Canada TDG Regulations, or the IAEA Regulations.

* * * * *

(b) * * *

(10) * * *

(iv) * * *

(A) For a package transported in accordance with the IMDG Code in a

closed transport vehicle or freight container, a label or placard conforming to the IMDG Code specifications for a “Class 2.3” or “Class 6.1” label or placard may be substituted for the POISON GAS or POISON INHALATION HAZARD label or placard, as appropriate. The transport vehicle or freight container must be marked with the identification numbers for the hazardous material in the manner specified in § 172.313(c) of this subchapter and placarded as required by subpart F of part 172 of this subchapter.

(B) For a package transported in accordance with the Transport Canada TDG Regulations in a closed transport vehicle or freight container, a label or placard conforming to the TDG Regulations specifications for a “Class 2.3” or “Class 6.1” label or placard may be substituted for the POISON GAS or POISON INHALATION HAZARD label or placard, as appropriate. The transport vehicle or freight container must be marked with the identification numbers for the hazardous material in the manner specified in § 172.313(c) of this subchapter and placarded as required by subpart F of part 172 of this subchapter. While in transportation in the United States, the transport vehicle or freight container may also be placarded in accordance with the appropriate TDG Regulations in addition to being placarded with the POISON GAS or POISON INHALATION HAZARD placards.

* * * * *

PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, TRAINING REQUIREMENTS, AND SECURITY PLANS

■ 8. The authority citation for part 172 continues to read as follows:

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.81, 1.96 and 1.97.

■ 9. In § 172.101, the Hazardous Materials Table is amended by revising entries under “[REVISE]” in the appropriate alphabetical sequence to read as follows:

§ 172.101 Purpose and use of hazardous materials table.

* * * * *

§ 172.101 HAZARDOUS MATERIALS TABLE

Sym-bols (1)	Hazardous materials descriptions and proper shipping names (2)	Hazard class or division (3)	Identification Numbers (4)	PG (5)	Label Codes (6)	Special Provisions (§ 172.102) (7)	(8)			(9)		(10)	
							Packaging (§ 173.***)			Quantity limitations (see §§ 173.27 and 175.75)		Vessel stowage	
							Excep-tions (8A)	Non-bulk (8B)	Bulk (8C)	Passenger aircraft/rail (9A)	Cargo air-craft only (9B)	Loca-tion (10A)	Other (10B)
*			*		*		*		*		*		
	[REVISE]												
*			*		*		*		*		*		
D	Ammonium nitrate-fuel oil mixture containing only prilled ammonium nitrate and fuel oil	1.5D	NA0331		1.5D	148	None	62	None	Forbidden	Forbidden	03	25, 19E
	*		*		*		*		*		*		
	Ammonium nitrate, with more than 0.2 percent combustible substances, including any organic substance calculated as carbon, to the exclusion of any other added substance	1.1D	UN0222		1.1D	370	None	62	None	Forbidden	Forbidden	04	25, 19E
	*		*		*		*		*		*		
	Ammonium perchlorate	1.1D	UN0402		1.1D	107	None	62	None	Forbidden	Forbidden	04	25, 19E
	*		*		*		*		*		*		
	Ammonium picrate, dry or wetted with less than 10 percent water, by mass	1.1D	UN0004		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E, 19E
	*		*		*		*		*		*		
	Ammunition, illuminating with or without burster, expelling charge or propelling charge	1.2G	UN0171		1.2G			62	62	Forbidden	Forbidden	03	25
	Ammunition, illuminating with or without burster, expelling charge or propelling charge	1.3G	UN0254		1.3G			62	62	Forbidden	Forbidden	03	25

Ammunition, illuminating <u>with or without burster, expelling charge or propelling charge</u>	1.4G	UN0297		1.4G			62	62	Forbidden	75 kg	02	25
Ammunition, incendiary <u>liquid or gel, with burster, expelling charge or propelling charge</u>	1.3J	UN0247		1.3J			62	None	Forbidden	Forbidden	05	25, 23E
*		*		*		*		*		*		*
Ammunition, incendiary, white phosphorus, <u>with burster, expelling charge or propelling charge</u>	1.2H	UN0243		1.2H			62	62	Forbidden	Forbidden	05	25, 14E, 15E, 17E
Ammunition, incendiary, white phosphorus, <u>with burster, expelling charge or propelling charge</u>	1.3H	UN0244		1.3H			62	62	Forbidden	Forbidden	05	25, 14E, 15E, 17E
Ammunition, incendiary <u>with or without burster, expelling charge, or propelling charge</u>	1.2G	UN0009		1.2G			62	62	Forbidden	Forbidden	03	25
Ammunition, incendiary <u>with or without burster, expelling charge, or propelling charge</u>	1.3G	UN0010		1.3G			62	62	Forbidden	Forbidden	03	25
Ammunition, incendiary <u>with or without burster, expelling charge or propelling charge</u>	1.4G	UN0300		1.4G			62	62	Forbidden	75 kg	02	25
Ammunition, practice	1.4G	UN0362		1.4G			62	62	Forbidden	75 kg	02	25
Ammunition, practice	1.3G	UN0488		1.3G			62	62	Forbidden	Forbidden	03	25
Ammunition, proof	1.4G	UN0363		1.4G			62	62	Forbidden	75 kg	02	25
*		*		*		*		*		*		*
Ammunition smoke, white phosphorus <u>with burster, expelling charge, or propelling charge</u>	1.2H	UN0245		1.2H			62	62	Forbidden	Forbidden	05	25, 14E, 15E, 17E
Ammunition, smoke, white phosphorus <u>with burster, expelling charge, or propelling charge</u>	1.3H	UN0246		1.3H			62	62	Forbidden	Forbidden	05	25, 14E, 15E, 17E
Ammunition, smoke <u>with or without burster, expelling charge or propelling charge</u>	1.2G	UN0015		1.2G			62	62	Forbidden	Forbidden	03	25, 17E
Ammunition, smoke <u>with or without burster, expelling charge or propelling charge</u>	1.3G	UN0016		1.3G			62	62	Forbidden	Forbidden	03	25, 17E
Ammunition, smoke <u>with or without burster, expelling charge or propelling charge</u>	1.4G	UN0303		1.4G			62	62	Forbidden	75 kg	02	25, 14E, 15E, 17E
*		*		*		*		*		*		*

	Ammunition, tear-producing <u>with burster, expelling charge or propelling charge</u>	1.2G	UN0018		1.2G, 8, 6.1			62	62	Forbidden	Forbidden	03	25, 17E
	Ammunition, tear-producing <u>with burster, expelling charge or propelling charge</u>	1.3G	UN0019		1.3G, 8, 6.1			62	62	Forbidden	Forbidden	03	25, 17E
	Ammunition, tear-producing <u>with burster, expelling charge or propelling charge</u>	1.4G	UN0301		1.4G, 8, 6.1			62	62	Forbidden	75 kg	02	25, 14E, 15E, 17E
	*		*		*		*		*		*		*
G	Ammunition, toxic <u>with burster, expelling charge, or propelling charge</u>	1.2K	UN0020		1.2K, 6.1			62	None	Forbidden	Forbidden	05	25, 14E, 15E, 17E
G	Ammunition, toxic <u>with burster, expelling charge, or propelling charge</u>	1.3K	UN0021		1.3K, 6.1			62	None	Forbidden	Forbidden	05	25, 14E, 15E, 17E
	*		*		*		*		*		*		*
	Articles, explosive, extremely insensitive <u>or</u> Articles, EEI	1.6N	UN0486		1.6N		None	62	None	Forbidden	Forbidden	03	25
G	Articles, explosive, n.o.s.	1.4S	UN0349		1.4S	101, 148, 382	None	62	None	25 kg	100 kg	01	25
G	Articles, explosive, n.o.s.	1.4B	UN0350		1.4B	101	None	62	None	Forbidden	Forbidden	05	25
G	Articles, explosive, n.o.s.	1.4C	UN0351		1.4C	101	None	62	None	Forbidden	75 kg	02	25
G	Articles, explosive, n.o.s.	1.4D	UN0352		1.4D	101	None	62	None	Forbidden	75 kg	02	25
G	Articles, explosive, n.o.s.	1.4G	UN0353		1.4G	101	None	62	None	Forbidden	75 kg	02	25
G	Articles, explosive, n.o.s.	1.1L	UN0354		1.1L	101	None	62	None	Forbidden	Forbidden	02	25, 14E, 15E
G	Articles, explosive, n.o.s.	1.2L	UN0355		1.2L	101	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
G	Articles, explosive, n.o.s.	1.3L	UN0356		1.3L	101	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
G	Articles, explosive, n.o.s.	1.1C	UN0462		1.1C	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.1D	UN0463		1.1D	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.1E	UN0464		1.1E	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.1F	UN0465		1.1F	101	None	62	None	Forbidden	Forbidden	05	25
G	Articles, explosive, n.o.s.	1.2C	UN0466		1.2C	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.2D	UN0467		1.2D	101	None	62	None	Forbidden	Forbidden	04	25

G	Articles, explosive, n.o.s.	1.2E	UN0468		1.2E	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.2F	UN0469		1.2F	101	None	62	None	Forbidden	Forbidden	05	25
G	Articles, explosive, n.o.s.	1.3C	UN0470		1.3C	101	None	62	None	Forbidden	Forbidden	04	25
G	Articles, explosive, n.o.s.	1.4E	UN0471		1.4E	101	None	62	None	Forbidden	75 kg	03	25
G	Articles, explosive, n.o.s.	1.4F	UN0472		1.4F	101	None	62	None	Forbidden	Forbidden	05	25
	*		*		*		*		*		*		*
	Articles, pyrophoric	1.2L	UN0380		1.2L		None	62	None	Forbidden	Forbidden	05	25, 14E, 15E, 17E
	Articles, pyrotechnic <u>for technical purposes</u>	1.1G	UN0428		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Articles, pyrotechnic <u>for technical purposes</u>	1.2G	UN0429		1.2G		None	62	None	Forbidden	Forbidden	03	25
	Articles, pyrotechnic <u>for technical purposes</u>	1.3G	UN0430		1.3G		None	62	None	Forbidden	Forbidden	03	25
	Articles, pyrotechnic <u>for technical purposes</u>	1.4G	UN0431		1.4G	381	None	62	None	Forbidden	75 kg	02	25
	Articles, pyrotechnic <u>for technical purposes</u>	1.4S	UN0432		1.4S		None	62	None	25 kg	100 kg	01	25
D	Asbestos	9	NA2212	III	9	156, IB8, IP2, IP4	155	216	216, 240	200 kg	200 kg	A	34, 40
G I	Asbestos, amphibole <u>amosite, tremolite, actinolite, anthophyllite, or crocidolite</u>	9	UN2212	II	9	156, IB8, IP2, IP4, T3, TP33	155	216	216, 240	Forbidden	Forbidden	A	34, 40
I	Asbestos, chrysotile	9	UN2590	III	9	156, IB8, IP2, IP3, T1, TP33	155	216	216, 240	200 kg	200 kg	A	34, 40
	*		*		*		*		*		*		*
	Barium azide, <u>dry or wetted with less than 50 percent water, by mass</u>	1.1A	UN0224		1.1A, 6.1	111, 117	None	62	None	Forbidden	Forbidden	05	25
	*		*		*		*		*		*		*
	Black powder, compressed <u>or</u> Gunpowder, compressed <u>or</u> Black powder, in pellets <u>or</u> Gunpowder, in pellets	1.1D	UN0028		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Black powder <u>or</u> Gunpowder, <u>granular or as a meal</u>	1.1D	UN0027		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Bombs, photo-flash	1.1F	UN0037		1.1F			62	None	Forbidden	Forbidden	05	25

	Bombs, photo-flash	1.1D	UN0038		1.1D			62	62	Forbidden	Forbidden	04	25
	Bombs, photo-flash	1.2G	UN0039		1.2G			62	62	Forbidden	Forbidden	03	25
	Bombs, photo-flash	1.3G	UN0299		1.3G			62	62	Forbidden	Forbidden	03	25
	*		*		*		*		*		*		*
	<u>Bombs, with bursting charge</u>	1.1F	UN0033		1.1F			62	None	Forbidden	Forbidden	05	25
	<u>Bombs, with bursting charge</u>	1.1D	UN0034		1.1D			62	62	Forbidden	Forbidden	04	25
	<u>Bombs, with bursting charge</u>	1.2D	UN0035		1.2D			62	62	Forbidden	Forbidden	04	25
	<u>Bombs, with bursting charge</u>	1.2F	UN0291		1.2F			62	None	Forbidden	Forbidden	05	25
	<u>Bombs with flammable liquid, with bursting charge</u>	1.1J	UN0399		1.1J			62	None	Forbidden	Forbidden	05	25, 23E
	<u>Bombs with flammable liquid, with bursting charge</u>	1.2J	UN0400		1.2J			62	None	Forbidden	Forbidden	05	25, 23E
	Boosters with detonator	1.1B	UN0225		1.1B		None	62	None	Forbidden	Forbidden	05	25
	Boosters with detonator	1.2B	UN0268		1.2B		None	62	None	Forbidden	Forbidden	05	25
	Boosters, <u>without detonator</u>	1.1D	UN0042		1.1D	148	None	62	None	Forbidden	Forbidden	04	25
	Boosters, <u>without detonator</u>	1.2D	UN0283		1.2D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	<u>Bursters, explosive</u>	1.1D	UN0043		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Calcium nitrate	5.1	UN1454	III	5.1	34, B120, IB8, IP3, T1, TP33	152	213	240	25 kg	100 kg	A	
	*		*		*		*		*		*		*
	Cartridges, flash	1.1G	UN0049		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Cartridges, flash	1.3G	UN0050		1.3G		None	62	None	Forbidden	75 kg	03	25
	Cartridges for weapons, blank	1.1C	UN0326		1.1C		None	62	None	Forbidden	Forbidden	04	25

	Cartridges for weapons, blank	1.2C	UN0413		1.2C		None	62	None	Forbidden	Forbidden	04	25
	Cartridges for weapons, blank or Cartridges, small arms, blank	1.3C	UN0327		1.3C		None	62	None	Forbidden	Forbidden	04	25
	Cartridges for weapons, blank or Cartridges, small arms, blank	1.4C	UN0338		1.4C		None	62	None	Forbidden	75 kg	02	25
	Cartridges for weapons, blank or Cartridges, small arms, blank or Cartridges for tools, blank	1.4S	UN0014		None		63	62	None	25 kg	100 kg	01	25
	Cartridges for weapons, inert projectile	1.2C	UN0328		1.2C		None	62	62	Forbidden	Forbidden	04	25
	Cartridges for weapons, inert projectile or Cartridges, small arms	1.4S	UN0012		None		63	62	None	25 kg	100 kg	01	25
	Cartridges for weapons, inert projectile or Cartridges, small arms	1.4C	UN0339		1.4C		None	62	None	Forbidden	75 kg	02	25
	Cartridges for weapons, inert projectile or Cartridges, small arms	1.3C	UN0417		1.3C		None	62	None	Forbidden	Forbidden	04	25
	Cartridges for weapons, <u>with bursting charge</u>	1.1F	UN0005		1.1F		None	62	None	Forbidden	Forbidden	05	25
	Cartridges for weapons, <u>with bursting charge</u>	1.1E	UN0006		1.1E		None	62	62	Forbidden	Forbidden	04	25
	Cartridges for weapons, <u>with bursting charge</u>	1.2F	UN0007		1.2F		None	62	None	Forbidden	Forbidden	05	25
	Cartridges for weapons, <u>with bursting charge</u>	1.2E	UN0321		1.2E		None	62	62	Forbidden	Forbidden	04	25
	Cartridges for weapons, <u>with bursting charge</u>	1.4F	UN0348		1.4F		None	62	None	Forbidden	Forbidden	05	25
	Cartridges for weapons, <u>with bursting charge</u>	1.4E	UN0412		1.4E		None	62	62	Forbidden	75 kg	03	25
	Cartridges, oil well	1.3C	UN0277		1.3C		None	62	62	Forbidden	Forbidden	04	25
	Cartridges, oil well	1.4C	UN0278		1.4C		None	62	62	Forbidden	75 kg	02	25
	Cartridges, power device	1.3C	UN0275		1.3C		None	62	62	Forbidden	75 kg	04	25
	Cartridges, power device	1.4C	UN0276		1.4C	110	None	62	62	Forbidden	75 kg	02	25
	Cartridges, power device	1.4S	UN0323		1.4S	110, 347	63	62	62	25 kg	100 kg	01	25
	Cartridges, power device	1.2C	UN0381		1.2C		None	62	62	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Cartridges, signal	1.3G	UN0054		1.3G		None	62	None	Forbidden	75 kg	03	25

	Cartridges, signal	1.4G	UN0312		1.4G		None	62	None	Forbidden	75 kg	02	25
	Cartridges, signal	1.4S	UN0405		1.4S		None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Cases, cartridge, empty with primer	1.4S	UN0055		1.4S	50	63	62	None	25 kg	100 kg	01	25
	Cases, cartridges, empty with primer	1.4C	UN0379		1.4C	50	None	62	None	Forbidden	75 kg	02	25
	Cases, combustible, empty, without primer	1.4C	UN0446		1.4C		None	62	None	Forbidden	75 kg	02	25
	Cases, combustible, empty, without primer	1.3C	UN0447		1.3C		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Charges, bursting, plastics bonded	1.1D	UN0457		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Charges, bursting, plastics bonded	1.2D	UN0458		1.2D		None	62	None	Forbidden	Forbidden	04	25
	Charges, bursting, plastics bonded	1.4D	UN0459		1.4D		None	62	None	Forbidden	75 kg	02	25
	Charges, bursting, plastics bonded	1.4S	UN0460		1.4S	347	None	62	None	25 kg	100 kg	01	25
	Charges, demolition	1.1D	UN0048		1.1D		None	62	62	Forbidden	Forbidden	04	25
	Charges, depth	1.1D	UN0056		1.1D		None	62	62	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Charges, explosive, commercial <u>without</u> detonator	1.1D	UN0442		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Charges, explosive, commercial <u>without</u> detonator	1.2D	UN0443		1.2D		None	62	None	Forbidden	Forbidden	04	25
	Charges, explosive, commercial <u>without</u> detonator	1.4D	UN0444		1.4D		None	62	None	Forbidden	75 kg	02	25
	Charges, explosive, commercial <u>without</u> detonator	1.4S	UN0445		1.4S	347	None	62	None	25 kg	100 kg	01	25
	Charges, propelling	1.1C	UN0271		1.1C		None	62	None	Forbidden	Forbidden	04	25
	Charges, propelling	1.3C	UN0272		1.3C		None	62	None	Forbidden	Forbidden	04	25
	Charges, propelling	1.2C	UN0415		1.2C		None	62	None	Forbidden	Forbidden	04	25

	Charges, propelling	1.4C	UN0491		1.4C		None	62	None	Forbidden	75 kg	02	25
	Charges, propelling, for cannon	1.3C	UN0242		1.3C		None	62	None	Forbidden	Forbidden	04	25
	Charges, propelling, for cannon	1.1C	UN0279		1.1C		None	62	None	Forbidden	Forbidden	04	25
	Charges, propelling, for cannon	1.2C	UN0414		1.2C		None	62	None	Forbidden	Forbidden	04	25
	Charges, shaped, flexible, linear	1.4D	UN0237		1.4D		None	62	None	Forbidden	75 kg	02	25
	Charges, shaped, flexible, linear	1.1D	UN0288		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Charges, shaped, <u>without detonator</u>	1.1D	UN0059		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Charges, shaped, <u>without detonator</u>	1.2D	UN0439		1.2D		None	62	None	Forbidden	Forbidden	04	25
	Charges, shaped, <u>without detonator</u>	1.4D	UN0440		1.4D		None	62	None	Forbidden	75 kg	02	25
	Charges, shaped, <u>without detonator</u>	1.4S	UN0441		1.4S	347	None	62	None	25 kg	100 kg	01	25
	Charges, supplementary explosive	1.1D	UN0060		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Coating solution (includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)	3	UN1139	I	3	T11, TP1, TP8, TP27	150	201	243	1 L	30 L	E	
				II	3	149, IB2, T4, TP1, TP8	150	202	242	5 L	60 L	B	
				III	3	B1, IB3, T2, TP1	150	203	242	60 L	220 L	A	
	*		*		*		*		*		*		*
DG	Combustible liquid, n.o.s.	Comb liq	NA1993	III	None	148, IB3, T1, TP1	150	203	241	60 L	220 L	A	
G	Components, explosive train, n.o.s.	1.2B	UN0382		1.2B	101	None	62	None	Forbidden	Forbidden	05	25
G	Components, explosive train, n.o.s.	1.4B	UN0383		1.4B	101	None	62	None	Forbidden	75 kg	05	25
G	Components, explosive train, n.o.s.	1.4S	UN0384		1.4S	101	None	62	None	25 kg	100 kg	01	25
G	Components, explosive train, n.o.s.	1.1B	UN0461		1.1B	101	None	62	None	Forbidden	Forbidden	05	25

Cutters, cable, explosive	1.4S	UN0070		1.4S		None	62	62	25 kg	100 kg	01	25
*		*		*		*		*		*		*
Cyclotetramethylenetetranitramine, desensitized <u>or</u> Octogen, desensitized <u>or</u> HMX, desensitized	1.1D	UN0484		1.1D		None	62	None	Forbidden	Forbidden	04	25
Cyclotetramethylenetetranitramine, wetted <u>or</u> HMX, wetted <u>or</u> Octogen, wetted <u>with not less than 15 percent water, by mass</u>	1.1D	UN0226		1.1D		None	62	None	Forbidden	Forbidden	04	25
*		*		*		*		*		*		*
Cyclotrimethylenetrinitramine, desensitized <u>or</u> Cyclonite, desensitized <u>or</u> Hexogen, desensitized <u>or</u> RDX, desensitized	1.1D	UN0483		1.1D		None	62	None	Forbidden	Forbidden	04	25
Cyclotrimethylenetrinitramine, wetted <u>or</u> Cyclonite, wetted <u>or</u> Hexogen, wetted <u>or</u> RDX, wetted with not less than 15 percent water by mass	1.1D	UN0072		1.1D		None	62	None	Forbidden	Forbidden	04	25
*		*		*		*		*		*		*
Deflagrating metal salts of aromatic nitroderivatives, n.o.s.	1.3C	UN0132		1.3C		None	62	None	Forbidden	Forbidden	04	25, 5E
*		*		*		*		*		*		*
Detonator assemblies, non-electric <u>for blasting</u>	1.1B	UN0360		1.1B		None	62	None	Forbidden	Forbidden	05	25
Detonator assemblies, non-electric, <u>for blasting</u>	1.4B	UN0361		1.4B	103, 148	63(f), 63(g)	62	None	Forbidden	75 kg	05	25
Detonator assemblies, non-electric, <u>for blasting</u>	1.4S	UN0500		1.4S	148, 347	63(f), 63(g)	62	None	25 kg	100 kg	01	25
Detonators, electric, <u>for blasting</u>	1.1B	UN0030		1.1B	148	63(f), 63(g)	62	None	Forbidden	Forbidden	05	25
Detonators, electric, <u>for blasting</u>	1.4B	UN0255		1.4B	103, 148	63(f), 63(g)	62	None	Forbidden	75 kg	05	25
Detonators, electric <u>for blasting</u>	1.4S	UN0456		1.4S	148, 347	63(f), 63(g)	62	None	25 kg	100 kg	01	25
Detonators for ammunition	1.1B	UN0073		1.1B		None	62	None	Forbidden	Forbidden	05	25
Detonators for ammunition	1.2B	UN0364		1.2B		None	62	None	Forbidden	Forbidden	05	25
Detonators for ammunition	1.4B	UN0365		1.4B	103	None	62	None	Forbidden	75 kg	05	25
Detonators for ammunition	1.4S	UN0366		1.4S	347	None	62	None	25 kg	100 kg	01	25

	Detonators, non-electric, <u>for blasting</u>	1.1B	UN0029		1.1B		None	62	None	Forbidden	Forbidden	05	25
	Detonators, non-electric, <u>for blasting</u>	1.4B	UN0267		1.4B	103	63(f), 63(g)	62	None	Forbidden	75 kg	05	25
	Detonators, non-electric, <u>for blasting</u>	1.4S	UN0455		1.4S	148, 347	63(f), 63(g)	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Diazodinitrophenol, wetted <u>with not less than 40 percent water or mixture of alcohol and water, by mass</u>	1.1A	UN0074		1.1A	111, 117	None	62	None	Forbidden	Forbidden	05	25
	*		*		*		*		*		*		*
	Diethyleneglycol dinitrate, desensitized <u>with not less than 25 percent non-volatile water-insoluble phlegmatizer, by mass</u>	1.1D	UN0075		1.1D		None	62	None	Forbidden	Forbidden	04	25, 21E
	*		*		*		*		*		*		*
	Dinitroglycoluril or Dingu	1.1D	UN0489		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Dinitrophenol, <u>dry or wetted with less than 15 percent water, by mass</u>	1.1D	UN0076		1.1D, 6.1		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Dinitrophenolates alkali metals, <u>dry or wetted with less than 15 percent water, by mass</u>	1.3C	UN0077		1.3C, 6.1		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Dinitrosorcinol, <u>dry or wetted with less than 15 percent water, by mass</u>	1.1D	UN0078		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Dinitrosobenzene	1.3C	UN0406		1.3C		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Dipicryl sulfide, <u>dry or wetted with less than 10 percent water, by mass</u>	1.1D	UN0401		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Explosive, blasting, type A	1.1D	UN0081		1.1D	148	None	62	None	Forbidden	Forbidden	04	25, 19E, 21E

	Explosive, blasting, type B	1.1D	UN0082		1.1D		None	62	None	Forbidden	Forbidden	04	25, 19E
	Explosive, blasting, type B or Agent blasting, Type B	1.5D	UN0331		1.5D	105, 106, 148	None	62	None	Forbidden	Forbidden	03	25, 19E
	Explosive, blasting, type C	1.1D	UN0083		1.1D	123	None	62	None	Forbidden	Forbidden	04	25, 22E
	Explosive, blasting, type D	1.1D	UN0084		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Explosive, blasting, type E	1.1D	UN0241		1.1D	148	None	62	None	Forbidden	Forbidden	04	25, 19E
	Explosive, blasting, type E or Agent blasting, Type E	1.5D	UN0332		1.5D	105, 106, 148	None	62	None	Forbidden	Forbidden	03	25, 19E
	*		*		*		*		*		*		*
	Fire extinguishers <i>containing compressed or liquefied gas</i>	2.2	UN1044		2.2	110	309	309	None	75 kg	150 kg	A	
	*		*		*		*		*		*		*
	Fireworks	1.1G	UN0333		1.1G	108	None	62	None	Forbidden	Forbidden	03	25
	Fireworks	1.2G	UN0334		1.2G	108	None	62	None	Forbidden	Forbidden	03	25
	Fireworks	1.3G	UN0335		1.3G	108	None	62	None	Forbidden	Forbidden	03	25
	Fireworks	1.4G	UN0336		1.4G	108, 200	None	62	None	Forbidden	75 kg	02	25
	Fireworks	1.4S	UN0337		1.4S	108	None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Flares, aerial	1.3G	UN0093		1.3G		None	62	None	Forbidden	75 kg	03	25
	Flares, aerial	1.4G	UN0403		1.4G		None	62	None	Forbidden	75 kg	02	25
	Flares, aerial	1.4S	UN0404		1.4S		None	62	None	25 kg	100 kg	01	25
	Flares, aerial	1.1G	UN0420		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Flares, aerial	1.2G	UN0421		1.2G		None	62	None	Forbidden	Forbidden	03	25
	*		*		*		*		*		*		*
	Flares, surface	1.3G	UN0092		1.3G		None	62	None	Forbidden	75 kg	03	25

	Flares, surface	1.1G	UN0418		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Flares, surface	1.2G	UN0419		1.2G		None	62	None	Forbidden	Forbidden	03	25
	*		*		*		*		*		*		*
	Flash powder	1.1G	UN0094		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Flash powder	1.3G	UN0305		1.3G		None	62	None	Forbidden	Forbidden	03	25
	*		*		*		*		*		*		*
	Fracturing devices, explosive, <u>without detonators for oil wells</u>	1.1D	UN0099		1.1D		None	62	62	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Fuse, igniter <u>tubular metal clad</u>	1.4G	UN0103		1.4G		None	62	None	Forbidden	75 kg	02	25
	Fuse, non-detonating <u>instantaneous or quickmatch</u>	1.3G	UN0101		1.3G		None	62	None	Forbidden	Forbidden	03	25
	Fuse, safety	1.4S	UN0105		1.4S		None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Fuzes, detonating	1.1B	UN0106		1.1B		None	62	None	Forbidden	Forbidden	05	25
	Fuzes, detonating	1.2B	UN0107		1.2B		None	62	None	Forbidden	Forbidden	05	25
	Fuzes, detonating	1.4B	UN0257		1.4B	116	None	62	None	Forbidden	75 kg	05	25
	Fuzes, detonating	1.4S	UN0367		1.4S	116	None	62	None	25 kg	100 kg	01	25
	Fuzes, detonating, <u>with protective features</u>	1.1D	UN0408		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Fuzes, detonating, <u>with protective features</u>	1.2D	UN0409		1.2D		None	62	None	Forbidden	Forbidden	04	25
	Fuzes, detonating, <u>with protective features</u>	1.4D	UN0410		1.4D	116	None	62	None	Forbidden	75 kg	02	25
	Fuzes, igniting	1.3G	UN0316		1.3G		None	62	None	Forbidden	Forbidden	03	25
	Fuzes, igniting	1.4G	UN0317		1.4G		None	62	None	Forbidden	75 kg	02	25
	Fuzes, igniting	1.4S	UN0368		1.4S		None	62	None	25 kg	100 kg	01	25

	*		*		*		*		*		*		*
Grenades, <u>hand or rifle, with bursting charge</u>	1.1D	UN0284		1.1D			62	None	Forbidden	Forbidden	04		25
Grenades, <u>hand or rifle, with bursting charge</u>	1.2D	UN0285		1.2D			62	None	Forbidden	Forbidden	04		25
Grenades, <u>hand or rifle, with bursting charge</u>	1.1F	UN0292		1.1F			62	None	Forbidden	Forbidden	05		25
Grenades, <u>hand or rifle, with bursting charge</u>	1.2F	UN0293		1.2F			62	None	Forbidden	Forbidden	05		25
	*		*	*		*		*		*			*
Grenades, practice, <u>hand or rifle</u>	1.4S	UN0110		1.4S			62	None	25 kg	100 kg	01		25
Grenades, practice, <u>hand or rifle</u>	1.3G	UN0318		1.3G			62	None	Forbidden	Forbidden	03		25
Grenades, practice, <u>hand or rifle</u>	1.2G	UN0372		1.2G			62	None	Forbidden	Forbidden	03		25
Grenades practice, <u>hand or rifle</u>	1.4G	UN0452		1.4G			62	None	Forbidden	75 kg	02		25
	*		*	*		*		*		*			*
Guanyl nitrosaminoguanylidene hydrazine, <u>wetted with not less than 30 percent water, by mass</u>	1.1A	UN0113		1.1A	111, 117	None	62	None	Forbidden	Forbidden	05		25
	*		*	*		*		*		*			*
Guanyl nitrosaminoguanyltetrazene, <u>wetted or Tetrazene, wetted with not less than 30 percent water or mixture of alcohol and water, by mass</u>	1.1A	UN0114		1.1A	111, 117	None	62	None	Forbidden	Forbidden	05		25
	*		*	*		*		*		*			*
Hexanitrodiphenylamine <u>or</u> Dipicrylamine <u>or</u> Hexyl	1.1D	UN0079		1.1D		None	62	None	Forbidden	Forbidden	04		25
	*		*	*		*		*		*			*
Hexanitrostilbene	1.1D	UN0392		1.1D		None	62	None	Forbidden	Forbidden	04		25
	*		*	*		*		*		*			*
Hexolite, <u>or</u> Hexotol <u>dry or wetted with less than 15 percent water, by mass</u>	1.1D	UN0118		1.1D		None	62	None	Forbidden	Forbidden	04		25
Hexotonal	1.1D	UN0393		1.1D		None	62	None	Forbidden	Forbidden	04		25

	5-Mercaptotetrazol-1-acetic acid	1.4C	UN0448		1.4C		None	62	None	Forbidden	75 kg	02	25
	*		*		*		*		*		*		*
	Mercury fulminate, wetted <u>with not less than 20 percent water, or mixture of alcohol and water, by mass</u>	1.1A	UN0135		1.1A	111, 117	None	62	None	Forbidden	Forbidden	05	25
	*		*		*		*		*		*		*
	Mines <u>with bursting charge</u>	1.1F	UN0136		1.1F			62	None	Forbidden	Forbidden	05	25
	Mines <u>with bursting charge</u>	1.1D	UN0137		1.1D			62	62	Forbidden	Forbidden	04	25
	Mines <u>with bursting charge</u>	1.2D	UN0138		1.2D			62	62	Forbidden	Forbidden	04	25
	Mines <u>with bursting charge</u>	1.2F	UN0294		1.2F			62	None	Forbidden	Forbidden	05	25
	*		*		*		*		*		*		*
D	Model rocket motor	1.4C	NA0276		1.4C	51	None	62	None	Forbidden	75 kg	02	25
D	Model rocket motor	1.4S	NA0323		1.4S	51	None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Nitro urea	1.1D	UN0147		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	5-Nitrobenzotriazol	1.1D	UN0385		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Nitrocellulose, <u>dry or wetted with less than 25 percent water (or alcohol), by mass</u>	1.1D	UN0340		1.1D		None	62	None	Forbidden	Forbidden	04	25, 27E
	*		*		*		*		*		*		*
	Nitrocellulose, <u>plasticized with not less than 18 percent plasticizing substance, by mass</u>	1.3C	UN0343		1.3C		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Nitrocellulose, <u>unmodified or plasticized with less than 18 percent plasticizing substance, by mass</u>	1.1D	UN0341		1.1D		None	62	None	Forbidden	Forbidden	04	25, 27E

	Nitrocellulose, wetted <u>with not less than 25 percent alcohol, by mass</u>	1.3C	UN0342		1.3C		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Nitroglycerin, desensitized <u>with not less than 40 percent non-volatile water insoluble phlegmatizer, by mass</u>	1.1D	UN0143		1.1D, 6.1	125	None	62	None	Forbidden	Forbidden	04	25, 21E
	*		*		*		*		*		*		*
	Nitroglycerin, solution in alcohol, <u>with more than 1 percent but not more than 10 percent nitroglycerin</u>	1.1D	UN0144		1.1D		None	62	None	Forbidden	Forbidden	04	25, 21E
	*		*		*		*		*		*		*
	Nitroguanidine or Picrite, <u>dry or wetted with less than 20 percent water, by mass</u>	1.1D	UN0282		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Nitrostarch, <u>dry or wetted with less than 20 percent water, by mass</u>	1.1D	UN0146		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Nitrotriazolone or NTO	1.1D	UN0490		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Octolite or Octol, <u>dry or wetted with less than 15 percent water, by mass</u>	1.1D	UN0266		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
G	Organic peroxide type B, liquid	5.2	UN3101		5.2, 1	53	152	225	None	Forbidden	Forbidden	D	12, 25, 52, 53
G	Organic peroxide type B, liquid, temperature controlled	5.2	UN3111		5.2, 1	53	None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type B, solid	5.2	UN3102		5.2, 1	53	152	225	None	Forbidden	Forbidden	D	12, 25, 52, 53
G	Organic peroxide type B, solid, temperature controlled	5.2	UN3112		5.2, 1	53	None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type C, liquid	5.2	UN3103		5.2		152	225	None	5 L	10 L	D	12, 25, 52, 53
G	Organic peroxide type C, liquid, temperature controlled	5.2	UN3113		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type C, solid	5.2	UN3104		5.2		152	225	None	5 kg	10 kg	D	12, 25, 52, 53

G	Organic peroxide type C, solid, temperature controlled	5.2	UN3114		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type D, liquid	5.2	UN3105		5.2		152	225	None	5 L	10 L	D	12, 25, 52, 53
G	Organic peroxide type D, liquid, temperature controlled	5.2	UN3115		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type D, solid	5.2	UN3106		5.2		152	225	None	5 kg	10 kg	D	12, 25, 52, 53
G	Organic peroxide type D, solid, temperature controlled	5.2	UN3116		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type E, liquid	5.2	UN3107		5.2	A61	152	225	None	10 L	25 L	D	12, 25, 52, 53
G	Organic peroxide type E, liquid, temperature controlled	5.2	UN3117		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type E, solid	5.2	UN3108		5.2		152	225	None	10 kg	25 kg	D	12, 25, 52, 53
G	Organic peroxide type E, solid, temperature controlled	5.2	UN3118		5.2		None	225	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type F, liquid	5.2	UN3109		5.2	A61, IP5	152	225	225	10 L	25 L	D	12, 25, 52, 53
G	Organic peroxide type F, liquid, temperature controlled	5.2	UN3119		5.2	IP5	None	225	225	Forbidden	Forbidden	D	2, 25, 52, 53
G	Organic peroxide type F, solid	5.2	UN3110		5.2	TP33	152	225	225	10 kg	25 kg	D	12, 25, 52, 53
G	Organic peroxide type F, solid, temperature controlled	5.2	UN3120		5.2	TP33	None	225	225	Forbidden	Forbidden	D	2, 25, 52, 53
	*		*		*		*		*		*		*
	Pentaerythrite tetranitrate <u>or</u> Pentaerythritol tetranitrate <u>or</u> PETN, <u>with not less than 7 percent wax by mass</u>	1.1D	UN0411		1.1D	120	None	62	None	Forbidden	Forbidden	04	25
	Pentaerythrite tetranitrate, wetted <u>or</u> Pentaerythritol tetranitrate, wetted, <u>or</u> PETN, wetted <u>with not less than 25 percent water, by mass, or</u> Pentaerythrite tetranitrate, <u>or</u> Pentaerythritol tetranitrate <u>or</u> PETN, desensitized <u>with not less than 15 percent phlegmatizer by mass</u>	1.1D	UN0150		1.1D	121	None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Pentolite, <u>dry or wetted with less than 15 percent water, by mass</u>	1.1D	UN0151		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Potassium	4.3	UN2257	1	4.3	A7, A19, A20, B27, IB4, IP1,	151	211	244	Forbidden	15 kg	D	13, 52, 148

						N6, N34, T9, TP7, TP33							
	*		*		*		*		*		*		*
	Powder cake, wetted or Powder paste, wetted with not less than 17 percent alcohol by mass	1.1C	UN0433		1.1C		None	62	None	Forbidden	Forbidden	04	25
	Powder cake, wetted or Powder paste, wetted with not less than 25 percent water, by mass	1.3C	UN0159		1.3C		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Powder, smokeless	1.1C	UN0160		1.1C		None	62	None	Forbidden	Forbidden	04	25, 26E
	Powder, smokeless	1.3C	UN0161		1.3C		None	62	None	Forbidden	Forbidden	04	25, 26E
	Powder, smokeless	1.4C	UN0509		1.4C	16	171	62	None	Forbidden	75 kg	02	25
	*		*		*		*		*		*		*
	Primers, cap type	1.4S	UN0044		None		None	62	None	25 kg	100 kg	01	25
	Primers, cap type	1.1B	UN0377		1.1B		None	62	None	Forbidden	Forbidden	05	25
	Primers, cap type	1.4B	UN0378		1.4B		None	62	None	Forbidden	75 kg	05	25
	*		*		*		*		*		*		*
	Primers, tubular	1.3G	UN0319		1.3G		None	62	None	Forbidden	Forbidden	03	25
	Primers, tubular	1.4G	UN0320		1.4G		None	62	None	Forbidden	75 kg	02	25
	Primers, tubular	1.4S	UN0376		None		None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Printing ink, flammable or Printing ink related material (including printing ink thinning or reducing compound), flammable	3	UN1210	I	3	367, T11, TP1, TP8	150	173	243	1 L	30 L	E	
				II	3	149, 367, 383, IB2, T4, TP1, TP8	150	173	242	5 L	60 L	B	
				III	3	367, B1, IB3, T2, TP1	150	173	242	60 L	220 L	A	
	*		*		*		*		*		*		*
	Projectiles, inert with tracer	1.4S	UN0345		1.4S			62	62	25 kg	100 kg	01	25
	Projectiles, inert, with tracer	1.3G	UN0424		1.3G			62	62	Forbidden	Forbidden	03	25
	Projectiles, inert, with tracer	1.4G	UN0425		1.4G			62	62	Forbidden	75 kg	02	25
	Projectiles, with burster or expelling charge	1.2D	UN0346		1.2D			62	62	Forbidden	Forbidden	04	25

Projectiles, <u>with burster or expelling charge</u>	1.4D	UN0347		1.4D			62	62	Forbidden	75 kg	02	25
Projectiles, <u>with burster or expelling charge</u>	1.2F	UN0426		1.2F			62	None	Forbidden	Forbidden	05	25
Projectiles, <u>with burster or expelling charge</u>	1.4F	UN0427		1.4F			62	None	Forbidden	Forbidden	05	25
Projectiles, <u>with burster or expelling charge</u>	1.2G	UN0434		1.2G			62	62	Forbidden	Forbidden	03	25
Projectiles, <u>with burster or expelling charge</u>	1.4G	UN0435		1.4G			62	62	Forbidden	75 kg	02	25
Projectiles, <u>with bursting charge</u>	1.1F	UN0167		1.1F			62	None	Forbidden	Forbidden	05	25
Projectiles, <u>with bursting charge</u>	1.1D	UN0168		1.1D			62	62	Forbidden	Forbidden	04	25
Projectiles, <u>with bursting charge</u>	1.2D	UN0169		1.2D			62	62	Forbidden	Forbidden	04	25
Projectiles, <u>with bursting charge</u>	1.2F	UN0324		1.2F			62	None	Forbidden	Forbidden	05	25
Projectiles, <u>with bursting charge</u>	1.4D	UN0344		1.4D			62	62	Forbidden	75 kg	02	25
*		*		*		*		*		*		*
Propellant, liquid	1.3C	UN0495		1.3C	37	None	62	None	Forbidden	Forbidden	04	25
Propellant, liquid	1.1C	UN0497		1.1C	37	None	62	None	Forbidden	Forbidden	04	25
Propellant, solid	1.1C	UN0498		1.1C		None	62	None	Forbidden	Forbidden	04	25, 26E
Propellant, solid	1.3C	UN0499		1.3C		None	62	None	Forbidden	Forbidden	04	25, 26E
Propellant, solid	1.4C	UN0501		1.4C		None	62	None	Forbidden	Forbidden	02	25
*		*		*		*		*		*		*
RDX and HMX mixtures, wetted <u>with not less than 15 percent water by mass</u> or RDX and HMX mixtures, desensitized <u>with not less than 10 percent phlegmatizer by mass</u>	1.1D	UN0391		1.1D		None	62	None	Forbidden	Forbidden	04	25
*		*		*		*		*		*		*
Release devices, explosive	1.4S	UN0173		1.4S		None	62	62	25 kg	100 kg	01	25
*		*		*		*		*		*		*
Rivets, explosive	1.4S	UN0174		1.4S		None	62	62	25 kg	100 kg	01	25
*		*		*		*		*		*		*
Rocket motors	1.3C	UN0186		1.3C	109	None	62	62	Forbidden	220 kg	04	25
Rocket motors	1.1C	UN0280		1.1C	109	None	62	62	Forbidden	Forbidden	04	25
Rocket motors	1.2C	UN0281		1.2C	109	None	62	62	Forbidden	Forbidden	04	25

	Rocket motors, liquid fueled	1.2J	UN0395		1.2J		109	None	62	None	Forbidden	Forbidden	05	25, 23E
	Rocket motors, liquid fueled	1.3J	UN0396		1.3J		109	None	62	None	Forbidden	Forbidden	05	25, 23E
	Rocket motors with hypergolic liquids with or without an expelling charge	1.3L	UN0250		1.3L		109	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
	Rocket motors with hypergolic liquids with or without an expelling charge	1.2L	UN0322		1.2L		109	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
	Rockets, line-throwing	1.2G	UN0238		1.2G			None	62	None	Forbidden	Forbidden	03	25
	Rockets, line-throwing	1.3G	UN0240		1.3G			None	62	None	Forbidden	75 kg	03	25
	Rockets, line-throwing	1.4G	UN0453		1.4G			None	62	None	Forbidden	75 kg	02	25
	Rockets, liquid fueled with bursting charge	1.1J	UN0397		1.1J			None	62	None	Forbidden	Forbidden	05	25, 23E
	Rockets, liquid fueled with bursting charge	1.2J	UN0398		1.2J			None	62	None	Forbidden	Forbidden	05	25, 23E
	Rockets, with bursting charge	1.1F	UN0180		1.1F			None	62	None	Forbidden	Forbidden	05	25
	Rockets, with bursting charge	1.1E	UN0181		1.1E			None	62	62	Forbidden	Forbidden	04	25
	Rockets, with bursting charge	1.2E	UN0182		1.2E			None	62	62	Forbidden	Forbidden	04	25
	Rockets, with bursting charge	1.2F	UN0295		1.2F			None	62	None	Forbidden	Forbidden	05	25
	Rockets, with expelling charge	1.2C	UN0436		1.2C			None	62	62	Forbidden	Forbidden	04	25
	Rockets, with expelling charge	1.3C	UN0437		1.3C			None	62	62	Forbidden	Forbidden	04	25
	Rockets, with expelling charge	1.4C	UN0438		1.4C			None	62	62	Forbidden	75 kg	02	25
	Rockets, with inert head	1.3C	UN0183		1.3C			None	62	62	Forbidden	Forbidden	04	25
	*		*		*			*		*		*		*
G	Self-heating solid, organic, n.o.s.	4.2	UN3088	II	4.2	IB6, IP2, T3, TP33		None	212	241	15 kg	50 kg	C	
				III	4.2	B116, B130, IB8, IP3, T1, TP33		None	213	241	25 kg	100 kg	C	
	*		*		*			*		*		*		
G	Self-reactive liquid type B	4.1	UN3221		4.1		53	151	224	None	Forbidden	Forbidden	D	25, 52, 53, 127
G	Self-reactive liquid type B, temperature controlled	4.1	UN3231		4.1		53	None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type C	4.1	UN3223		4.1			151	224	None	5 L	10 L	D	25, 52, 53
G	Self-reactive liquid type C, temperature controlled	4.1	UN3233		4.1			None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type D	4.1	UN3225		4.1			151	224	None	5 L	10 L	D	25, 52, 53
G	Self-reactive liquid type D, temperature controlled	4.1	UN3235		4.1			None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53

G	Self-reactive liquid type E	4.1	UN3227		4.1		151	224	None	10 L	25 L	D	25, 52, 53
G	Self-reactive liquid type E, temperature controlled	4.1	UN3237		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive liquid type F	4.1	UN3229		4.1		151	224	None	10 L	25 L	D	25, 52, 53
G	Self-reactive liquid type F, temperature controlled	4.1	UN3239		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type B	4.1	UN3222		4.1	53	151	224	None	Forbidden	Forbidden	D	25, 52, 53, 127
G	Self-reactive solid type B, temperature controlled	4.1	UN3232		4.1	53	None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type C	4.1	UN3224		4.1		151	224	None	5 kg	10 kg	D	25, 52, 53
G	Self-reactive solid type C, temperature controlled	4.1	UN3234		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type D	4.1	UN3226		4.1		151	224	None	5 kg	10 kg	D	25, 52, 53
G	Self-reactive solid type D, temperature controlled	4.1	UN3236		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type E	4.1	UN3228		4.1		151	224	None	10 kg	25 kg	D	25, 52, 53
G	Self-reactive solid type E, temperature controlled	4.1	UN3238		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
G	Self-reactive solid type F	4.1	UN3230		4.1		151	224	None	10 kg	25 kg	D	25, 52, 53
G	Self-reactive solid type F, temperature controlled	4.1	UN3240		4.1		None	224	None	Forbidden	Forbidden	D	2, 25, 52, 53
	*		*		*		*		*		*		*
	Signal devices, hand	1.4G	UN0191		1.4G	381	None	62	None	Forbidden	75 kg	02	25
	Signal devices, hand	1.4S	UN0373		1.4S	381	None	62	None	25 kg	100 kg	01	25
	Signals, distress, <u>ship</u>	1.1G	UN0194		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Signals, distress, <u>ship</u>	1.3G	UN0195		1.3G		None	62	None	Forbidden	75 kg	03	25
	*		*		*		*		*		*		*
	Signals, railway track, explosive	1.1G	UN0192		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Signals, railway track, explosive	1.4S	UN0193		1.4S	381	None	62	None	25 kg	100 kg	01	25
	*		*		*		*		*		*		*
	Signals, smoke	1.1G	UN0196		1.1G		None	62	None	Forbidden	Forbidden	03	25
	Signals, smoke	1.4G	UN0197		1.4G		None	62	None	Forbidden	75 kg	02	25
	Signals, smoke	1.2G	UN0313		1.2G		None	62	None	Forbidden	Forbidden	03	25
	Signals, smoke	1.3G	UN0487		1.3G		None	62	None	Forbidden	Forbidden	03	25
	*		*		*		*		*		*		*

	Sodium	4.3	UN1428	I	4.3	A7, A8, A19, A20, B9, B48, B68, IB4, IP1, N34, T9, TP7, TP33, TP46	151	211	244	Forbidden	15 kg	D	13, 52, 148
	*		*		*		*		*		*		*
	Sodium dinitro-o-cresolate, <u>dry or wetted with less than 15 percent water, by mass</u>	1.3C	UN0234		1.3C		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Sodium picramate, <u>dry or wetted with less than 20 percent water, by mass</u>	1.3C	UN0235		1.3C		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Sounding devices, explosive	1.2F	UN0204		1.2F		None	62	62	Forbidden	Forbidden	05	25
	Sounding devices, explosive	1.1F	UN0296		1.1F		None	62	62	Forbidden	Forbidden	05	25
	Sounding devices, explosive	1.1D	UN0374		1.1D		None	62	62	Forbidden	Forbidden	04	25
	Sounding devices, explosive	1.2D	UN0375		1.2D		None	62	62	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
G	Substances, explosive, n.o.s.	1.1L	UN0357		1.1L	101	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
G	Substances, explosive, n.o.s.	1.2L	UN0358		1.2L	101	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
G	Substances, explosive, n.o.s.	1.3L	UN0359		1.3L	101	None	62	None	Forbidden	Forbidden	05	25, 14E, 15E
G	Substances, explosive, n.o.s.	1.1A	UN0473		1.1A	101, 111	None	62	None	Forbidden	Forbidden	05	25
G	Substances, explosive, n.o.s.	1.1C	UN0474		1.1C	101	None	62	None	Forbidden	Forbidden	04	25
G	Substances, explosive, n.o.s.	1.1D	UN0475		1.1D	101	None	62	None	Forbidden	Forbidden	04	25
G	Substances, explosive, n.o.s.	1.1G	UN0476		1.1G	101	None	62	None	Forbidden	Forbidden	03	25
G	Substances, explosive, n.o.s.	1.3C	UN0477		1.3C	101	None	62	None	Forbidden	Forbidden	04	25
G	Substances, explosive, n.o.s.	1.3G	UN0478		1.3G	101	None	62	None	Forbidden	Forbidden	03	25
G	Substances, explosive, n.o.s.	1.4C	UN0479		1.4C	101	None	62	None	Forbidden	75 kg	02	25
G	Substances, explosive, n.o.s.	1.4D	UN0480		1.4D	101	None	62	None	Forbidden	75 kg	02	25
G	Substances, explosive, n.o.s.	1.4S	UN0481		1.4S	101	None	62	None	25 kg	75 kg	01	25
G	Substances, explosive, n.o.s.	1.4G	UN0485		1.4G	101	None	62	None	Forbidden	75 kg	02	25
G	Substances, explosive, very insensitive, n.o.s. or Substances, EVI, n.o.s.	1.5D	UN0482		1.5D	101	None	62	None	Forbidden	Forbidden	03	25
	Substituted nitrophenol pesticides, liquid,	3	UN2780	I	3, 6.1	T14, TP2,	None	201	243	Forbidden	30 L	B	40

	flammable, toxic, <u>flash point less than 23 degrees C</u>					TP13, TP27							
				II	3, 6.1	IB2, T11, TP2, TP13, TP27	150	202	243	1 L	60 L	B	40
	*		*		*		*		*		*		*
	Tetranitroaniline	1.1D	UN0207		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Tetrazol-1-acetic acid	1.4C	UN0407		1.4C		None	62	None	Forbidden	75 kg	02	25
	*		*		*		*		*		*		*
	Torpedoes, liquid fueled, <u>with inert head</u>	1.3J	UN0450		1.3J			62	None	Forbidden	Forbidden	05	25, 23E
	Torpedoes, liquid fueled, <u>with or without bursting charge</u>	1.1J	UN0449		1.1J			62	None	Forbidden	Forbidden	05	25, 23E
	Torpedoes <u>with bursting charge</u>	1.1E	UN0329		1.1E			62	62	Forbidden	Forbidden	04	25
	Torpedoes <u>with bursting charge</u>	1.1F	UN0330		1.1F			62	None	Forbidden	Forbidden	05	25
	Torpedoes <u>with bursting charge</u>	1.1D	UN0451		1.1D			62	62	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
D	Toy Caps	1.4S	NA0337		1.4S		None	62	None	25 kg	100 kg	01	25
	Tracers for ammunition	1.3G	UN0212		1.3G		None	62	None	Forbidden	Forbidden	03	25
	Tracers for ammunition	1.4G	UN0306		1.4G		None	62	None	Forbidden	75 kg	02	25
	*		*		*		*		*		*		*
	Trinitro-m-cresol	1.1D	UN0216		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Trinitroaniline <u>or</u> Picramide	1.1D	UN0153		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitroanisole	1.1D	UN0213		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrobenzene, <u>dry or wetted with less than 30 percent water, by mass</u>	1.1D	UN0214		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Trinitrobenzenesulfonic acid	1.1D	UN0386		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E
	Trinitrobenzoic acid, <u>dry or wetted with less than 30 percent water, by mass</u>	1.1D	UN0215		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Trinitrochlorobenzene <u>or</u> Picryl chloride	1.1D	UN0155		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Trinitrofluorenone	1.1D	UN0387		1.1D		None	62	None	Forbidden	Forbidden	04	25

	*		*		*		*		*		*		*
	Trinitronaphthalene	1.1D	UN0217		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrophenetole	1.1D	UN0218		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrophenol (picric acid), wetted, <u>with not less than 10 percent water by mass</u>	4.1	UN3364	I	4.1	23, A8, A19, N41, N84	None	211	None	0.5 kg	0.5 kg	E	28, 36
	Trinitrophenol or Picric acid, <u>dry or wetted with less than 30 percent water, by mass</u>	1.1D	UN0154		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E
	Trinitrophenol, wetted <u>with not less than 30 percent water, by mass</u>	4.1	UN1344	I	4.1	162, A8, A19, N41	None	211	None	1 kg	15 kg	E	28, 36
	*		*		*		*		*		*		*
	Trinitrophenylmethylnitramine or Tetryl	1.1D	UN0208		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitroresorcinol or Styphnic acid, <u>dry or wetted with less than 20 percent water, or mixture of alcohol and water, by mass</u>	1.1D	UN0219		1.1D		None	62	None	Forbidden	Forbidden	04	25, 5E
	Trinitroresorcinol, wetted or Styphnic acid, wetted <u>with not less than 20 percent water, or mixture of alcohol and water by mass</u>	1.1D	UN0394		1.1D	385	None	62	None	Forbidden	Forbidden	04	25, 5E
	*		*		*		*		*		*		*
	Trinitrotoluene and Trinitrobenzene mixtures or TNT and trinitrobenzene mixtures or TNT and hexanitrostilbene mixtures or Trinitrotoluene and hexanitrostilbene mixtures	1.1D	UN0388		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrotoluene mixtures containing Trinitrobenzene and Hexanitrostilbene or TNT mixtures containing trinitrobenzene and hexanitrostilbene	1.1D	UN0389		1.1D		None	62	None	Forbidden	Forbidden	04	25
	Trinitrotoluene or TNT, <u>dry or wetted with less than 30 percent water, by mass</u>	1.1D	UN0209		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Tritonal	1.1D	UN0390		1.1D		None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Urea nitrate, <u>dry or wetted with less than 20 percent water, by mass</u>	1.1D	UN0220		1.1D	119	None	62	None	Forbidden	Forbidden	04	25
	*		*		*		*		*		*		*
	Warheads, rocket with burster or expelling charge	1.4D	UN0370		1.4D		None	62	62	Forbidden	75 kg	02	25
	Warheads, rocket with burster or expelling charge	1.4F	UN0371		1.4F		None	62	None	Forbidden	Forbidden	05	25
	Warheads, rocket with bursting charge	1.1D	UN0286		1.1D		None	62	62	Forbidden	Forbidden	04	25

* * * * *

BILLING CODE 4910-60-C

■ 10. In § 172.102, in paragraph (c)(1), revise special provision 136 to read as follows:

§ 172.102 Special provisions.

* * * * *
(c) * * *
(1) * * *

136 This entry only applies to machinery and apparatus containing hazardous materials as an integral element of the machinery or apparatus. It may not be used to describe machinery or apparatus for which a proper shipping name exists in the § 172.101 Table. Except when approved by the Associate Administrator, machinery or apparatus may only contain hazardous materials for which exceptions are referenced in Column (8) of the § 172.101 Table and are provided in part 173, subparts D and G, of this subchapter. Hazardous materials shipped under this entry are excepted from the labeling requirements of this subchapter unless offered for transportation or transported by aircraft and are not subject to the placarding requirements of subpart F of this part. Orientation markings as described in § 172.312(a)(2) are required when liquid hazardous materials may escape due to incorrect orientation. The machinery or apparatus, if unpackaged, or the packaging in which it is contained shall be marked "Dangerous goods in machinery" or "Dangerous goods in apparatus," as appropriate, with the identification number UN3363. For transportation by aircraft, machinery or apparatus may not contain any material forbidden for transportation by passenger or cargo aircraft. The Associate Administrator may except from the requirements of this subchapter equipment, machinery and apparatus provided:

- a. It is shown that it does not pose a significant risk in transportation;
- b. The quantities of hazardous materials do not exceed those specified in § 173.4a of this subchapter; and
- c. The equipment, machinery or apparatus conforms with § 173.222 of this subchapter.

* * * * *

■ 11. In § 172.201, revise paragraph (d) to read as follows:

§ 172.201 Preparation and retention of shipping papers.

* * * * *

(d) *Emergency response telephone number.* Except as provided in § 172.604(d), a shipping paper must contain an emergency response telephone number and, if utilizing an

emergency response information telephone number service provider, identify the person (by name or contract number) who has a contractual agreement with the service provider, as prescribed in subpart G of this part.

* * * * *

■ 12. In § 172.301, revise paragraph (f) to read as follows:

§ 172.301 General marking requirements for non-bulk packagings.

* * * * *

(f) *NON-ODORIZED marking on cylinders containing LPG.* No person may offer for transportation or transport a specification cylinder, except a Specification 2P or 2Q container or a Specification 39 cylinder, containing unodorized liquefied petroleum gas (LPG) unless it is legibly marked NON-ODORIZED or NOT ODORIZED in letters not less than 6.3 mm (0.25 inches) in height near the marked proper shipping name required by paragraph (a) of this section. The NON-ODORIZED or NOT ODORIZED marking may appear on a cylinder used for both unodorized and odorized LPG.

■ 13. In § 172.326, paragraph (d) is revised to read as follows:

§ 172.326 Portable tanks.

* * * * *

(d) *NON-ODORIZED marking on portable tanks containing LPG.* No person may offer for transportation or transport a portable tank containing unodorized liquefied petroleum gas (LPG) as authorized in § 173.315(b)(1) of this subchapter unless it is legibly marked NON-ODORIZED or NOT ODORIZED on two opposing sides near the marked proper shipping name required by paragraph (a) of this section, or near the placards. The NON-ODORIZED or NOT ODORIZED marking may appear on a portable tank used for both unodorized and odorized LPG.

■ 14. In § 172.328, revise paragraph (e) to read as follows:

§ 172.328 Cargo tanks.

* * * * *

(e) *NON-ODORIZED marking on cargo tanks containing LPG.* No person may offer for transportation or transport a cargo tank containing unodorized liquefied petroleum gas (LPG) as authorized in § 173.315(b)(1) of this subchapter unless it is legibly marked NON-ODORIZED or NOT ODORIZED on two opposing sides near the marked proper shipping name as specified in paragraph (b)(1) of this section, or near the placards. The NON-ODORIZED or NOT ODORIZED marking may appear on a cargo tank used for both unodorized and odorized LPG.

■ 15. In § 172.330, revise paragraph (c) to read as follows:

§ 172.330 Tank cars and multi-unit tank car tanks.

* * * * *

(c) No person may offer for transportation or transport a tank car or multi-unit tank car tank containing unodorized liquefied petroleum gas (LPG) unless it is legibly marked NON-ODORIZED or NOT ODORIZED on two opposing sides near the marked proper shipping name required by paragraphs (a)(1) and (2) of this section, or near the placards. The NON-ODORIZED or NOT ODORIZED marking may appear on a tank car or multi-unit tank car tank used for both unodorized and odorized LPG.

■ 16. In § 172.406, revise paragraph (d) to read as follows:

§ 172.406 Placement of labels.

* * * * *

(d) *Contrast with background.* Each label must be printed on or affixed to a background color contrasting to the color specification of the label as required by § 172.407(d)(1), or must have a dotted or solid line outer border, to enhance the visibility of the label. However, the dotted or solid line outer border may also be used for backgrounds of contrasting color.

* * * * *

■ 17. In § 172.407, revise paragraph (d)(4)(ii) to read as follows:

§ 172.407 Label specifications.

* * * * *

(d) * * *
(4) * * *

(ii) Color charts conforming to appendix A to this part are on display at the Standards and Rulemaking Division, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, East Building, 2nd Floor, 1200 New Jersey Avenue SE., Washington, DC 20590-0001.

* * * * *

■ 18. In § 172.514, paragraph (c)(4) is revised to read as follows:

§ 172.514 Bulk Packagings.

* * * * *

(c) * * *

(4) *An IBC.* For an IBC labeled in accordance with subpart E of this part, the IBC may display the proper shipping name and UN identification number markings in accordance with § 172.301(a)(1) in place of the UN number on an orange panel, placard or white square-on-point configuration as prescribed in § 172.336(d); and

* * * * *

■ 19. In § 172.604, revise paragraph (a) introductory text to read as follows:

§ 172.604 Emergency response telephone number.

(a) A person who offers a hazardous material for transportation must provide a numeric emergency response telephone number, including the area code, for use in an emergency involving the hazardous material. For telephone numbers outside the United States, the international access code or the “+” (plus) sign, country code, and city code, as appropriate, that are needed to complete the call must be included. The telephone number must be—

* * * * *

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

■ 20. The authority citation for part 173 continues to read as follows:

Authority: 49 U.S.C. 5101–5128, 44701; 49 CFR 1.81, 1.96 and 1.97.

■ 21. In § 173.4a, revise paragraph (a) introductory text to read as follows:

§ 173.4a Excepted quantities.

(a) Excepted quantities of materials, other than articles (e.g., aerosols), are not subject to requirements of this subchapter except for:

* * * * *

■ 22. In § 173.24a, paragraph (c)(1)(iv) is revised to read as follows:

§ 173.24a Additional general requirements for non-bulk packagings and packages.

* * * * *

(c) * * *

(1) * * *

(iv) For transportation by aircraft, the total net quantity does not exceed the lowest permitted maximum net quantity per package as shown in Column (9a) or (9b), as appropriate, of the § 172.101 Table of this subchapter. The permitted maximum net quantity must be calculated in kilograms if a package contains both a liquid and a solid. These requirements do not apply to limited quantity hazardous materials packaged in accordance with § 173.27(f)(2).

* * * * *

■ 23. In § 173.27, revise the paragraph (f)(2)(i) introductory text to read as follows:

§ 173.27 General requirements for transportation by aircraft.

* * * * *

(f) * * *

(2) * * *

(i) Unless otherwise specified in this part, or in subpart C of part 171 of this

subchapter, when a limited quantity of hazardous material packaged in a combination packaging is intended for transportation aboard an aircraft, the inner and outer packagings must conform to the quantity limitations set forth in Table 3 of this paragraph (f). Materials and articles must be authorized for transportation aboard a passenger-carrying aircraft (see Column (9A) of the § 172.101 Hazardous Materials Table of this subchapter). Not all unauthorized materials or articles may be indicated in this table. For mixed content packages of limited quantity material, the total net quantity must not exceed the lowest permitted maximum net quantity (for each of the hazard classes or divisions represented in the package) per outer package set forth in Table 3 of this paragraph (f). The permitted maximum net quantity must be calculated in kilograms for a package that contains both a solid and a liquid. Unless otherwise excepted, packages must be marked and labeled in accordance with this section and any additional requirements in subparts D and E, respectively, of part 172 of this subchapter. Materials or articles not authorized as limited quantity by aircraft are:

* * * * *

■ 24. In § 173.150, revise paragraphs (f)(3)(ix) and (x) and add paragraph (f)(3)(xi) to read as follows:

§ 173.150 Exceptions for Class 3 (flammable and combustible liquids).

* * * * *

(f) * * *

(3) * * *

(ix) The training requirements of subpart H of part 172 of this subchapter;

(x) Emergency response information requirements of subpart G of part 172; and

(xi) For bulk packagings only, registration requirements of subpart G of part 107 of this subchapter.

* * * * *

■ 25. In § 173.158, revise paragraph (e) to read as follows:

§ 173.158 Nitric acid.

* * * * *

(e) Nitric acid of less than 90 percent concentration, when offered for transportation or transported by rail, highway, or water may be packaged in 4A, 4B, or 4N metal boxes, 4G fiberboard boxes or 4C1, 4C2, 4D or 4F wooden boxes with inside glass packagings of not over 2.5 L (0.66 gallon) capacity each. When placed in wooden or fiberboard outer packagings, the glass inner packagings must be packed in tightly-closed, intermediate

packagings, cushioned with an absorbent material. The intermediate packaging and absorbent material must be compatible with the nitric acid. See § 173.24(e).

* * * * *

■ 26. In § 173.159, revise (e)(4) and add paragraph (k) to read as follows:

§ 173.159 Batteries, wet.

* * * * *

(e) * * *

(4) Except for the purpose of consolidating shipments of batteries for recycling, the transport vehicle may not carry material shipped by any person other than the shipper of the batteries; and

* * * * *

(k) *Damaged wet electric storage batteries.* (1) Damaged batteries incapable of retaining battery fluid inside the outer casing during transportation may be transported by highway or rail provided the batteries are transported in non-bulk packaging, meet the requirements of paragraph (a) of this section, and are prepared for transport under one or more of the following conditions:

(i) Drain the battery of fluid to eliminate the potential for leakage during transportation;

(ii) Individually pack the battery in a leak proof intermediate package with sufficient compatible absorbent material capable of absorbing the release of any electrolyte and place the intermediate packaging in a leakproof outer packaging that conforms to the general packaging requirements of subpart B of this part;

(iii) Pack the battery in a salvage packaging in accordance with the provisions of § 173.3(c); or

(iv) When packaged with other batteries or materials (e.g., on pallets or non-skid rails) and secured to prevent movement during transport, pack the battery in leakproof packaging to prevent leakage of battery fluid from the packaging under conditions normally incident to transportation.

(2) Shipment of damage batteries in accordance with this paragraph is eligible for exception under paragraph (e) of this section.

■ 27. In § 173.166, revise the paragraph (e)(6) introductory text to read as follows:

§ 173.166 Safety devices.

* * * * *

(e) * * *

(6) *Safety devices removed from a vehicle.* When removed from, or were intended to be used in, a motor vehicle that was manufactured as required for

use in the United States and offered for domestic transportation by highway or cargo vessel to Recycling or Waste Disposal facilities, a serviceable safety device classed as Class 9 UN3268 may be offered for transportation and transported in the following additional packaging:

* * * * *

■ 28. In § 173.170, revise paragraph (b) to read as follows:

§ 173.170 Black powder for small arms.

* * * * *

(b) The total quantity of black powder in one transport vehicle or freight container may not exceed 45.4 kg (100 pounds) net mass. No more than four freight containers may be on board one cargo vessel;

* * * * *

■ 29. In § 173.171, revise paragraph (b)(1) to read as follows:

§ 173.171 Smokeless powder for small arms.

* * * * *

(b) * * *

(1) One transport vehicle or cargo-only aircraft; or

* * * * *

■ 30. In § 173.199, revise paragraph (a)(4) to read as follows:

§ 173.199 Category B infectious substances.

(a) * * *

(4) The completed package must be designed, constructed, maintained, filled, its contents limited, and closed so that under conditions normally encountered in transportation, including removal from a pallet or overpack for subsequent handling, there will be no release of hazardous material into the environment. Package effectiveness must not be substantially reduced for minimum and maximum

temperatures, changes in humidity and pressure, and shocks, loadings and vibrations normally encountered during transportation. The packaging must be capable of successfully passing the drop test in § 178.609(d) of this subchapter at a drop height of at least 1.2 meters (3.9 feet). Following the drop test, there must be no leakage from the primary receptacle, which must remain protected by absorbent material, when required, in the secondary packaging. At least one surface of the outer packaging must have a minimum dimension of 100 mm by 100 mm (3.9 inches).

* * * * *

■ 31. In § 173.225, revise the table in paragraph (d)(4) to read as follows:

§ 173.225 Packaging requirements and other provisions for organic peroxides.

* * * * *

(d) * * *

(4) * * *

MAXIMUM QUANTITY PER PACKAGING/PACKAGE

[For packing methods OP1 to OP8]

Maximum quantity	Packing method							
	OP1	OP2 ¹	OP3	OP4 ¹	OP5	OP6	OP7	OP8
Solids and combination packagings (liquid and solid) (kg)	0.5	0.5/10	5	5/25	25	50	50	² 400
Liquids (L)	0.5	5	30	60	60	³ 225

¹ If two values are given, the first applies to the maximum net mass per inner packaging and the second to the maximum net mass of the complete package.

² 60 kg for jerricans/200 kg for boxes and, for solids, 400 kg in combination packagings with outer packagings comprising boxes (4C1, 4C2, 4D, 4F, 4G, 4H1, and 4H2) and with inner packagings of plastics or fiber with a maximum net mass of 25 kg.

³ 60 L for jerricans.

* * * * *

■ 32. In § 173.301, revise paragraph (g)(1)(iii) to read as follows:

§ 173.301 General requirements for shipment of compressed gases and other hazardous materials in cylinders, UN pressure receptacles and spherical pressure vessels.

* * * * *

(g) * * *

(1) * * *

(iii) Acetylene as authorized by § 173.303. Mobile acetylene trailers must be maintained, operated and transported in accordance with CGA G-1.6 (IBR, see § 171.7 of this subchapter).

* * * * *

■ 33. In § 173.306, revise paragraph (k)(1) to read as follows:

§ 173.306 Limited quantities of compressed gases.

* * * * *

(k) * * *

(1) Aerosols conforming to paragraph (a)(3), (a)(5), (b)(1), (b)(2), or (b)(3) of this section are excepted from the

labeling requirements of subpart E of part 172 this subchapter, the specification packaging requirements of this subchapter when packaged in accordance with this paragraph, the shipping paper requirements of subpart C of part 172 of this subchapter (unless the material meets the definition of a hazardous substance or hazardous waste), and the 30 kg (66 pounds) gross weight limitation, when transported by motor vehicle for purposes of recycling or disposal under the following conditions:

(i) The aerosols must be packaged in a strong outer packaging. The strong outer packaging and its contents must not exceed a gross weight of 500 kg (1,100 pounds);

(ii) Each aerosol must be secured with a cap to protect the valve stem or the valve stem must be removed;

(iii) Each completed package must be marked in accordance with § 172.315(a); and

(iv) The packaging must be offered for transportation or transported by—

(A) Private or contract motor carrier; or

(B) Common carrier in a motor vehicle under exclusive use for such service.

* * * * *

■ 34. In § 173.314, adding paragraph (h) to read as follows:

§ 173.314 Compressed gases in tank cars and multi-unit tank cars.

* * * * *

(h) *Special requirements for liquefied petroleum gas—(1) Odorization.* All liquefied petroleum gas must be odorized as required in this paragraph to indicate positively, by a distinctive odor, the presence of gas down to a concentration in air of not over one-fifth the lower limit of combustibility; however, odorization is not required if it is harmful in the use or further processing of the liquefied petroleum gas or if it will serve no useful purpose as a warning agent in such use or further processing.

(i) The lower limits of combustibility of the more commonly used liquefied

petroleum gases are: Propane, 2.15 percent; butane, 1.55 percent. These figures represent volumetric percentages of gas-air mixtures in each case.

(ii) The use of 1.0 pound of ethyl mercaptan per 10,000 gallons of liquefied petroleum gas is considered sufficient to meet the requirements of this paragraph. Use of another odorant is not prohibited so long as there is enough to meet the requirements of this paragraph (h).

(2) *Odorant fade.* In addition to paragraph (h)(1)(i) of this section, the offeror must ensure that enough odorant will remain in the tank car during the course of transportation. The shipper must have procedures in place to:

(i) Ensure quantitative testing methods are used to measure the amount of odorant in the liquefied petroleum gas;

(ii) Ensure that, when the odorization of liquefied petroleum gas is manually injected, the required amount of odorant is added;

(iii) Ensure that, when odorization of liquefied petroleum gas is automatically injected, equipment calibration checks are conducted to ensure the required amount of odorant is consistently added;

(iv) Ensure quality control measures are in place to make sure that persons who receive tank cars that have been subjected to any condition that could lead to corrosion of the tank car or receive new or recently cleaned tank cars are notified of this information and that a person filling these packagings implement quality control measures so that potential odorant fade is addressed;

(v) Inspect a tank car for signs of oxidation or corrosion; and

(vi) Take corrective action needed to ensure enough odorization remains in the tank car during the course of transportation, such as increasing the amount of odorant added to the liquefied petroleum gas.

* * * * *

■ 35. In § 173.315, revise paragraph (b)(1) and add paragraph (b)(2) to read as follows:

§ 173.315 Compressed gases in cargo tanks and portable tanks.

* * * * *

(b) * * *

(1) *Odorization.* All liquefied petroleum gas must be odorized as required in this paragraph to indicate positively, by a distinctive odor, the presence of gas down to a concentration in air of not over one-fifth the lower limit of combustibility; however, odorization is not required if it is harmful in the use or further processing

of the liquefied petroleum gas or if it will serve no useful purpose as a warning agent in such use or further processing.

(i) The lower limits of combustibility of the more commonly used liquefied petroleum gases are: Propane, 2.15 percent; butane, 1.55 percent. These figures represent volumetric percentages of gas-air mixtures in each case.

(ii) The use of 1.0 pound of ethyl mercaptan per 10,000 gallons of liquefied petroleum gas is considered sufficient to meet the requirements of this paragraph (b). Use of any other odorant is not prohibited so long as there is enough to meet the requirements of this paragraph.

(2) *Odorant fade.* For cargo tanks or portable tanks being transported from a refinery, gas plant or pipeline terminal and in addition to paragraph (b)(1)(i) of this section, the offeror must ensure that enough odorant will remain in the cargo tank or portable tank during the course of transportation. The shipper must have procedures in place to:

(i) Ensure quantitative testing methods are used to measure the amount of odorant in the liquefied petroleum gas;

(ii) Ensure that, when the odorization of liquefied petroleum gas is manually injected, the required amount of odorant is being added;

(iii) Ensure that, when odorization of liquefied petroleum gas is automatically injected, equipment calibration checks are conducted to ensure the required amount of odorant is consistently added;

(iv) Ensure that quality control measures are in place to make sure that persons who receive cargo tanks or portable tanks that have been subjected to any condition that could lead to corrosion of the packaging or receive new or recently cleaned cargo tanks or portable tanks are notified of this information and that a person filling these packagings implement quality control measures to ensure that potential odorant fade is addressed;

(v) Inspect a cargo tank or portable tank for signs of oxidation or corrosion; and

(vi) Take corrective action needed to ensure enough odorant remains in the cargo tank or portable tank during the course of transportation, such as increasing the amount of odorant added to the liquefied petroleum gas.

* * * * *

PART 175—CARRIAGE BY AIR

■ 36. The authority citation for part 175 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 44701; 49 CFR 1.81 and 1.97.

■ 37. In § 175.1, add paragraph (d) to read as follows:

§ 175.1 Purpose, scope and applicability.

* * * * *

(d) The requirements of this subchapter do not apply to transportation of hazardous material in support of dedicated air ambulance, firefighting, or search and rescue operations performed in compliance with the operator requirements under federal air regulations, title 14 of the CFR.

■ 38. In § 175.8, revise paragraph (b)(1) to read as follows:

§ 175.8 Exceptions for operator equipment and items of replacement.

* * * * *

(b) * * *

(1) Oxygen, or any hazardous material used for the generation of oxygen, for medical use by a passenger, which is furnished by the aircraft operator in accordance with 14 CFR 121.574, 125.219, or 135.91. For the purposes of this paragraph (b)(1), an aircraft operator that does not hold a certificate under 14 CFR parts 121, 125, or 135 may apply this exception in conformance with 14 CFR 121.574, 125.219, or 135.91 in the same manner as required for a certificate holder. See § 175.501 for additional requirements applicable to the stowage of oxygen.

* * * * *

§ 175.9 [Amended]

■ 39. In § 175.9, remove and reserve paragraph (b)(4).

■ 40. In § 175.10, revise paragraphs (a)(6), (23), and (25) to read as follows:

§ 175.10 Exceptions for passengers, crewmembers, and air operators.

(a) * * *

(6) Hair curlers (curling irons) containing a hydrocarbon gas such as butane, no more than one per person, in carry-on baggage only. The safety cover must be securely fitted over the heating element. Gas refills for such curlers are not permitted in carry-on or checked baggage.

* * * * *

(23) Non-infectious specimens in preservative solutions transported in accordance with § 173.4b(b) of this subchapter.

* * * * *

(25) Small cartridges fitted into or securely packed with devices with no more than four small cartridges of carbon dioxide or other suitable gas in Division 2.2, without subsidiary risk

with the approval of the operator. The water capacity of each cartridge must not exceed 50 mL (equivalent to a 28 g cartridge).

* * * * *

■ 41. In § 175.75, revise paragraph (e)(2) to read as follows:

§ 175.75 Quantity limitations and cargo location.

* * * * *

(e) * * *

(2) Packages of hazardous materials transported aboard a cargo aircraft, when other means of transportation are impracticable or not available, in accordance with procedures approved in writing by the FAA Regional Office in the region where the operator is certificated.

* * * * *

PART 176—CARRIAGE BY VESSEL

■ 42. The authority citation for part 176 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

■ 43. In § 176.30, revise paragraph (a)(4) to read as follows:

§ 176.30 Dangerous cargo manifest.

(a) * * *

(4) The number and description of packages (barrels, drums, cylinders, boxes, etc.) and gross weight for each type of package;

* * * * *

PART 177—CARRIAGE BY PUBLIC HIGHWAY

■ 44. The authority citation for part 177 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; sec. 112 of Pub. L. 103–311, 108 Stat. 1673, 1676 (1994); sec. 32509 of Pub. L. 112–141, 126 Stat. 405, 805 (2012); 49 CFR 1.81 and 1.97.

■ 45. In § 177.834, revise paragraphs (i)(3) and (4) to read as follows:

§ 177.834 General requirements.

* * * * *

(i) * * *

(3) A qualified person “attends” the loading or unloading of a cargo tank only if, throughout the process:

(i) Except for unloading operations subject to §§ 177.837(d) and 177.840(p) and (q), the qualified person is within 7.62 m (25 feet) of the cargo tank. The qualified person attending the unloading of a cargo tank must be alert and have an unobstructed view of the cargo tank and delivery hose to the maximum extent practicable during the unloading operation; or

(ii) The qualified person observes all loading or unloading operations by

means of video cameras and monitors or instrumentation and signaling systems such as sensors, alarms, and electronic surveillance equipment located at a remote control station, and the loading or unloading system is equipped as follows:

(A) For a video monitoring system used to meet the attendance requirement, the camera must be mounted so as to provide an unobstructed view of all equipment involved in the loading or unloading operations, including all valves, hoses, domes, and pressure relief devices;

(B) For an instrumentation and signaling system used to meet the attendance requirement, the system must provide a surveillance capability at least equal to that of a human observer;

(C) Upon loss of video monitoring capability or instrumentation and signaling systems, loading or unloading operations must be immediately terminated;

(D) Shut-off valves operable from the remote control station must be provided;

(E) In the event of a remote system failure, a qualified person must immediately resume attending the loading or unloading of the cargo tank as provided in paragraph (i)(3)(i) of this section;

(F) A containment area must be provided capable of holding the contents of as many cargo tank motor vehicles as might be loaded at any single time; and

(G) A qualified person must personally conduct a visual inspection of each cargo tank motor vehicle after it is loaded, prior to departure, for any damage that may have occurred during loading; or

(iii) Hoses used in the loading or unloading operations are equipped with cable-connected wedges, plungers, or flapper valves located at each end of the hose, able to stop the flow of product from both the source and the receiving tank within one second without human intervention in the event of a hose rupture, disconnection, or separation.

(A) Prior to each use, each hose must be inspected to ensure that it is of sound quality, without defects detectable through visual observation; and

(B) The loading or unloading operations must be physically inspected by a qualified person at least once every sixty (60) minutes.

(4) A person is “qualified” if he has been made aware of the nature of the hazardous material which is to be loaded or unloaded, has been instructed on the procedures to be followed in emergencies, and except for persons

observing loading or unloading operations by means of video cameras and monitors or instrumentation and signaling systems such as sensors, alarms, and electronic surveillance equipment located at a remote control station and persons inspecting hoses in accordance with paragraph (i)(3)(iii) of this section, is authorized to move the cargo tank, and has the means to do so.

* * * * *

■ 46. In § 177.840, add paragraph (a)(4) to read as follows:

§ 177.840 Class 2 (gases) materials.

* * * * *

(a) * * *

(4) Cylinders for acetylene. Cylinders containing acetylene and manifolded as part of a mobile acetylene trailer system must be transported in accordance with § 173.301(g) of this subchapter.

* * * * *

■ 47. In § 177.848, revise paragraph (e)(5) to read as follows:

§ 177.848 Segregation of hazardous materials.

* * * * *

(e) * * *

(5) The note “A” in the second column of the table means that, notwithstanding the requirements of the letter “X”, ammonium nitrate (UN1942) and ammonium nitrate fertilizer may be loaded or stored with Division 1.1 (explosive) or Division 1.5 materials, unless otherwise prohibited by § 177.835(c).

* * * * *

PART 178—SPECIFICATIONS FOR PACKAGINGS

■ 48. The authority citation for part 178 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

■ 49. In § 178.337–17, revise paragraph (a) introductory text to read as follows:

§ 178.337–17 Marking.

(a) General. Each cargo tank certified after October 1, 2004 must have a corrosion-resistant metal name plate (ASME Plate); and each cargo tank motor vehicle certified after October 1, 2004 must have a specification plate, permanently attached to the cargo tank by brazing, welding, or other suitable means on the left side near the front, in a place accessible for inspection. If the specification plate is attached directly to the cargo tank wall by welding, it must be welded to the tank before the cargo tank is postweld heat treated.

* * * * *

■ 50. In § 178.345–3, revise the paragraph (c)(1) introductory text and formula to read as follows:

§ 178.345–3 Structural integrity.

* * * * *

(c) * * *

(1) *Normal operating loadings.* The following procedure addresses stress in the cargo tank shell resulting from normal operating loadings. The effective stress (the maximum principal stress at any point) must be determined by the following formula:

$$S = 0.5(S_y + S_x) \pm [0.25(S_y - S_x)^2 + S_S^2]^{0.5}$$

* * * * *

■ 51. In § 178.955, redesignate paragraphs (h) and (i) as paragraphs (i) and (j), respectively, and add new paragraph (h) to read as follows:

§ 178.955 General requirements.

* * * * *

(h) *Approval of equivalent packagings.* A Large Packaging differing from standards in subpart P of this part, or tested using methods other than those specified in this subpart, may be used if approved by the Associate Administrator. The Large Packagings and testing methods must be shown to have an equivalent level of safety.

* * * * *

PART 179—SPECIFICATIONS FOR TANK CARS

■ 52. The authority citation for part 179 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

■ 53. In § 179.13, revise paragraph (b) to read as follows:

§ 179.13 Tank car capacity and gross weight limitation.

* * * * *

(b) Tank cars containing poisonous-by-inhalation material meeting the applicable authorized tank car specifications listed in § 173.244(a)(2) or (3) or § 173.314(c) or (d) of this subchapter may have a gross weight on rail of up to 286,000 pounds (129,727 kg). Tank cars containing poisonous-by-inhalation material not meeting the specifications listed in § 173.244(a)(2) or (3) or § 173.314(c) or (d) may be loaded to a gross weight on rail of up to 286,000 pounds (129,727 kg) only upon approval of the Associate Administrator for Safety, Federal Railroad Administration (FRA). Any increase in weight above 263,000 pounds may not be used to increase the quantity of the contents of the tank car.

■ 54. In § 179.24, revise the paragraph (a)(2) introductory text to read as follows:

§ 179.24 Stamping.

* * * * *

(a) * * *

(2) Each plate must be stamped, embossed, or otherwise marked by an equally durable method in letters 3/16 inch high with the following information (parenthetical abbreviations may be used, and the AAR form reference is to the applicable provisions

of the AAR Specifications for Tank Cars (IBR, see § 171.7 of this subchapter):

* * * * *

PART 180—CONTINUING QUALIFICATION AND MAINTENANCE OF PACKAGINGS

■ 55. The authority citation for part 180 continues to read as follows:

Authority: 49 U.S.C. 5101–5128; 49 CFR 1.81 and 1.97.

■ 56. In § 180.209, revise the paragraph (j) introductory text to read as follows:

§ 180.209 Requirements for requalification of specification cylinders.

* * * * *

(j) *Cylinder used as a fire extinguisher.* Only a DOT specification cylinder used as a fire extinguisher and meeting the requirements of § 173.309(a) of this subchapter may be requalified in accordance with this paragraph (j).

* * * * *

■ 57. In § 180.407:

■ a. In the table in paragraph (c), revise the entries for “Internal Visual Inspection” and “Pressure Test” and the notes to table;

■ b. Revise paragraphs (d)(3) and (g)(1)(ii) introductory text; and

■ c. Add paragraph (j).

The revisions and addition read as follows:

§ 180.407 Requirements for test and inspection of specification cargo tanks.

* * * * *

(c) * * *

COMPLIANCE DATES—INSPECTIONS AND TEST UNDER § 180.407(c)

Test or inspection (cargo tank specification, configuration, and service)	Date by which first test must be completed (see Note 1)	Interval period after first test
Internal Visual Inspection:		
All insulated cargo tanks, except MC 330, MC 331, MC 338 (see Note 4)	September 1, 1991	1
All cargo tanks transporting lading corrosive to the tank	September 1, 1991	1
MC 331 cargo tanks less than 3,500 gallons water capacity in dedicated propane service constructed of nonquenched and tempered NQT SA-612 steel (see Note 5).	September 1, 2016	10
All other cargo tanks, except MC 338	September 1, 1995	5
Pressure Test (Hydrostatic or pneumatic) (See Notes 2 and 3):		
All cargo tanks which are insulated with no manhole or insulated and lined, except MC 338 ..	September 1, 1991	1
All cargo tanks designed to be loaded by vacuum with full opening rear heads	September 1, 1992	2
MC 330 and MC 331 cargo tanks in chlorine service	September 1, 1992	2
MC 331 cargo tanks less than 3,500 gallons water capacity in dedicated propane service constructed of nonquenched and tempered NQT steel (See Note 5).	September 1, 2017	10
All other cargo tanks	September 1, 1995	5

Note 1: If a cargo tank is subject to an applicable inspection or test requirement under the regulations in effect on December 30, 1990, and the due date (as specified by a requirement in effect on December 30, 1990) for completing the required inspection or test occurs before the compliance date listed in table 1, the earlier date applies.

Note 2: Pressure testing is not required for MC 330 or MC 331 cargo tanks in dedicated sodium metal service.

Note 3: Pressure testing is not required for uninsulated lined cargo tanks, with a design pressure MAWP 15 psig or less, which receive an external visual inspection and lining inspection at least once each year.

Note 4: Insulated cargo tanks equipped with manholes or inspection openings may perform either an internal visual inspection in conjunction with the external visual inspection or a hydrostatic or pneumatic pressure-test of the cargo tank.

Note 5: A 10-year inspection interval period also applies to cargo tanks constructed of NQT SA-202, NQT SA-455, or NQT SA-612 steels provided the materials have full-size equivalent (FSE) Charpy vee notch (CVN) energy test data that demonstrated 75% shear-area ductility at 32 °F with an average of 3 or more samples >15 ft-lb FSE with no sample <10 ft-lb FSE.

(d) * * *

(3) All reclosing pressure relief valves must be externally inspected for any corrosion or damage which might prevent safe operation. All reclosing pressure relief valves on cargo tanks carrying lading corrosive to the valve must be removed from the cargo tank for inspection and testing. Each reclosing pressure relief valve required to be removed and tested must be tested according to the requirements set forth in paragraph (j) of this section.

* * * * *

(g) * * *

(1) * * *

(ii) All self-closing pressure relief valves, including emergency relief vents and normal vents, must be removed from the cargo tank for inspection and testing according to the requirements in paragraph (j) of this section.

* * * * *

(j) *Pressure vent bench test.* When required by this section, pressure relief valves must be tested for proper function as follows:

(1) Each self-closing pressure relief valve must open and reseal to a leaktight condition at the pressures prescribed for the applicable cargo tank specification or at the following pressures:

(i) For MC 306 cargo tanks:

(A) With MC 306 reclosing pressure relief valves, it must open at not less than 3 psi and not more than 4.4 psi and must reseal to a leak tight-condition at no less than 2.7 psi.

(B) With reclosing pressure relief valves modified as provided in § 180.405(c) to conform with DOT 406 specifications, according to the pressures set forth for a DOT 406 cargo tank in § 178.346-3 of this subchapter.

(ii) For MC 307 cargo tanks:

(A) With MC 307 reclosing pressure relief valves, it must open at not less than the cargo tank MAWP and not more than 110% of the cargo tank MAWP and must reseal to a leak tight-condition at no less than 90% of the cargo tank MAWP.

(B) With reclosing pressure relief valves modified as provided in § 180.405(c) to conform with DOT 407 specifications, according to the pressures set forth for a DOT 407 cargo tank in § 178.347-4 of this subchapter.

(iii) For MC 312 cargo tanks:

(A) With MC 312 reclosing pressure relief valves, it must open at not less than the cargo tank MAWP and not more than 110% of the cargo tank MAWP and must reseal to a leak tight-condition at no less than 90% of the cargo tank MAWP.

(B) With reclosing pressure relief valves modified as provided in § 180.405(c) to conform with DOT 412 specifications, according to the pressures set forth for a DOT 412 cargo tank in § 178.348-4 of this subchapter.

(iv) For MC 330 or MC 331 cargo tanks, it must open at not less than the required set pressure and not more than 110% of the required set pressure and must reseal to a leak-tight condition at

no less than 90% of the required set pressure.

(v) For DOT 400-series cargo tanks, according to the pressures set forth for the applicable cargo tank specification in §§ 178.346-3, 178.347-4, and 178.348-4, respectively, of this subchapter.

(vi) For cargo tanks not specified in this paragraph, it must open at not less than the required set pressure and not more than 110% of the required set pressure and must reseal to a leak-tight condition at no less than 90% of the required set pressure or the pressure prescribed for the applicable cargo tank specification.

(2) Normal vents (1 psig vents) must be tested according to the testing criteria established by the valve manufacturer.

(3) Self-closing pressure relief devices not tested or failing the tests in paragraph (j)(1) of this section must be repaired or replaced.

§ 180.503 [Amended]

■ 58. In § 180.503, under the definition of “Qualification”, “AAR Tank Car Manual” is removed and “AAR Specifications for Tank Cars” is added in its place.

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