GLOBAL ADDITION OF CLASS 1 INTO LQ

SAAMI
SPORTING ARMS AND AMMUNITION MANUFACTURERS’ INSTITUTE, INC.
SINCE 1926

2013 LOGISTICS SEMINAR
- Ammunition & Components –

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AMMUNITION COMPONENTS

- shot
- slug
- shell case
- wad with shot cup
- wad
- gunpowder
- primer

CENTERFIRE

- bullet
- cartridge case
- gunpowder
- rim containing primer
- primer

RIMFIRE

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<table>
<thead>
<tr>
<th>Symbol</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division (1)</th>
<th>Identification Numbers (2)</th>
<th>PG (3)</th>
<th>Label Codes (4)</th>
<th>Special provisions (5)</th>
<th>(8) Packaging (§173.***)(6)</th>
<th>(9) Quantity limitations (7)</th>
<th>(10) Vessel stowage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cartridges for weapons, blank or Cartridges, small arms, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63 62 None</td>
<td>None 25 kg 100 kg</td>
<td>5 5</td>
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<tr>
<td></td>
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<td>1.4S</td>
<td>UN0012</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63 62 None</td>
<td>None 25 kg 100 kg</td>
<td>5 5</td>
</tr>
<tr>
<td>D</td>
<td>Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63 None None</td>
<td>30 kg gross 30 kg gross</td>
<td>A -</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Cartridges, power device (used to project fastening devices)</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63 None None</td>
<td>30 kg gross 30 kg gross</td>
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<tr>
<td></td>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
<td>UN0055</td>
<td>II</td>
<td>1.4S</td>
<td>50</td>
<td>None 62 None</td>
<td>25 kg 100 kg</td>
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<tr>
<td></td>
<td>Powder, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None 62 None</td>
<td>Forbidden Forbidden</td>
<td>- 26E</td>
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<tr>
<td></td>
<td>Primers, cap type</td>
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<td>UN0044</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>None 62 None</td>
<td>25 kg 100 kg</td>
<td>05 -</td>
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<td></td>
<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>II</td>
<td>1.4B</td>
<td>-</td>
<td>None 62 None</td>
<td>Forbidden 75 kg 07</td>
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<td>D</td>
<td>Smokeless powder for small arms</td>
<td>4.1</td>
<td>NA3178</td>
<td>II</td>
<td>4.1</td>
<td>16</td>
<td>None 171 None</td>
<td>Forbidden 7.3 kg A</td>
<td>-</td>
</tr>
</tbody>
</table>
Other Regulated Materials, Group D -

“ORM-D material” means a material such as a consumer commodity, which, although otherwise subject to the regulations of this subchapter, presents a limited hazard during transportation due to its form, quantity and packaging. It must be a material for which exceptions are provided in the § 172.101 table.
171.16  Spill Reporting

172.101  Subpart B, HM Table & Special Provisions

172.200  Subpart C, Shipping Papers (except haz sub, haz waste, marine poll., air and vessel)

172.300  Subpart D, Marking

172.400  Subpart E, Labeling

172.500  Subpart F, Placarding

172.600  Subpart G, Emergency Response Info

172.700  Subpart H, Training

172.800  Subpart I, Security Plans

173.63  Spec Packaging Exception

175.75  Aircraft Accessibility
ORM-D Eliminates Ground Fees

The ORM-D System Eliminates Shipping Paper Requirements.

No Shipping Paper = No Hazmat Fee

$27.50
BREAKING CASES

- Distributors Break Cases For Retailers As Their Value Added Service
- A Foundation Of Consumer Sales
- ORM-D Eliminates POP Testing And Allows Partial Case Shipping
- Haz and Non-Haz Mixed Together To Reduce Shipping Cost

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LQ modified to replace ORM-D
ORM-D-AIR – DEC. 31, 2012
ORM-D-AIR No Longer Exists

ORM-D
ORM was originally scheduled to end on Dec 31, 2013, now Dec 31, 2020. Running concurrently with LQ since Jan 2011.
## SCHEDULE

<table>
<thead>
<tr>
<th>Description</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic UN0012 &amp; 0014</td>
<td>January-11</td>
</tr>
<tr>
<td>Domestic UN 0055 and UN 0014 powerloads</td>
<td>January-13</td>
</tr>
<tr>
<td>IMDG</td>
<td>January-13</td>
</tr>
<tr>
<td>ICAO</td>
<td>N/A</td>
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<tr>
<td>ADR</td>
<td>January-13</td>
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<tr>
<td>ORM-D-AIR Ends</td>
<td>31-Dec-2012</td>
</tr>
<tr>
<td>ORM-D Ground Ends</td>
<td>31-Dec-2013 (extended to Dec/20)</td>
</tr>
</tbody>
</table>
"The rationale behind limited quantity provisions is that selected (i.e. lower hazard) dangerous goods packed in small quantities and in good, robust packaging pose a lesser risk in transport than do the same goods packed in larger volumes, and on this basis some relief from the requirements may be accepted." – UN Guiding Principles

- No LQ shipment maximum.
- 30kg Gross Combination Pkg.

Ammo: 5kg inner max
### LQ BY CLASS (16th Ed.)

<table>
<thead>
<tr>
<th>Class/Division</th>
<th>Packing Group</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not permitted</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Aerosols and gas cartridges containing toxic substances: 120 ml/30 kg Other aerosols and gas cartridges: 1 L/30 kg</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Not permitted</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Without subsidiary risk: 120 ml/30 kg With subsidiary risk: Not permitted</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Not permitted</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I Not permitted</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>1 L/30 kg</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>5 L/30 kg</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>I Not permitted</td>
<td></td>
</tr>
</tbody>
</table>

*Class 1 was not permitted*
Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Thirty-seventh session
Geneva, 21–30 June 2010
Item 2 of the provisional agenda
Explosives and related matters

Division 1.4S limited quantities

Transmitted by the Sporting Arms & Ammunition Manufacturers’
Institute (SAAMI)¹

Introduction

1. At the thirty-sixth session of the Sub-Committee, discussions were held on the
proposals from SAAMI (ST/SG/AC.10/C.3/2009/38 and informal document INF.9)
regarding the transport of UN 0012, CARTRIDGES FOR WEAPONS, INERT PROJECTILE or
CARTRIDGES, SMALL ARMS, UN 0014, CARTRIDGES FOR WEAPONS, BLANK or
CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGES FOR TOOLS, BLANK, and UN
0055, CASES, CARTRIDGE, EMPTY, WITH PRIMER, as limited quantities.
EQUIVALENT SAFETY

Sporting Ammunition Outside A Firearm:
1. Is Unlikely To Ignite Under Extreme Conditions Of Impact
2. Will Not Propagate In A Chain Reaction Independent of Packaging
3. Will Not Be The Source Of A Fire
4. Is Slow To Ignite In A Fire
5. Does Not Mass Explode
6. May Be Controlled By Fire Fighters Using Water And Wearing Standard Structural Fire Fighter Protective Clothing And SCBA

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<table>
<thead>
<tr>
<th>UN No.</th>
<th>Name and description</th>
<th>Class or division</th>
<th>Subsidiary risk</th>
<th>UN packing group</th>
<th>Special provisions</th>
<th>Limited and excepted quantities</th>
<th>Packagings and IBCs</th>
<th>Packing instruction</th>
<th>Special packing provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012</td>
<td>CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS†</td>
<td>1.4S</td>
<td>2.0</td>
<td>2.0.1.3</td>
<td>3.3</td>
<td>3.4</td>
<td>4.1.4</td>
<td>5 kg</td>
<td>P130</td>
</tr>
<tr>
<td>0014</td>
<td>CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGES FOR TOOLS, BLANK†</td>
<td>1.4S</td>
<td>2.0</td>
<td>2.0.1.3</td>
<td>3.3</td>
<td>3.4</td>
<td>4.1.4</td>
<td>5 kg</td>
<td>P130</td>
</tr>
<tr>
<td>0055</td>
<td>CASES, CARTRIDGE, EMPTY, WITH PRIMER†</td>
<td>1.4S</td>
<td>2.0</td>
<td>2.0.1.3</td>
<td>3.3</td>
<td>3.4</td>
<td>4.1.4</td>
<td>5 kg</td>
<td>P136</td>
</tr>
</tbody>
</table>
“Evidence of a hazardous effect outside the package includes:
(d) A projection which passes completely through the packaging (a projection or fragment retained or stuck in the wall of the packaging is considered as non hazardous).”
PACKAGING:

3.4.2 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. Intermediate packagings may be used. In addition, for articles of Division 1.4, Compatibility Group S, the provisions of section 4.1.5 shall be fully complied with. The use of inner packagings is not necessary for the transport of articles such as aerosols or “receptacles, small, containing gas”. The total gross mass of the package shall not exceed 30 kg.

3.4.3 Except for articles of Division 1.4, Compatibility Group S, shrink-wrapped or stretch-wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings for articles or inner packagings containing dangerous goods transported in accordance with this Chapter. Inner packagings that are liable to break or be easily punctured, such as those made of glass, porcelain, stoneware or certain plastics, shall be placed in suitable intermediate packagings meeting the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8, and be so designed that they meet the construction requirements of 6.1.4. The total gross mass of the package shall not exceed 20 kg.

Spec Packaging Not Required In US & Canada
LQ EXCEPTIONS

Common Exceptions (But May Be Permissively Used):
- Performance oriented packaging, if in strong combination packages of 30 kg max (the only exception for air)
- Marking, labeling and placarding
- Segregation
- Documentation (for ground)
US HAZMAT ENTRY CHANGES

- UN 0014: New Proper Shipping Name “Cartridges for tools, blank”
- UN 0055: Now in 173.63 LQ Exception
- ORM-D Entries Will Be Phased Out Dec 31, 2015
(b) Cartridges, small arms, and cartridges power devices. (1) Cartridges, small arms, and cartridges power devices (which are used to project fastening devices) which have been classed as a Division 1.4S explosive may be reclassed, offered for transportation, and transported as ORM-D material when packaged in accordance with paragraph (b)(2) of this section. For transportation by aircraft, the package must also comply with the applicable requirements of §173.27 of this subchapter. Such transportation is excepted from the requirements of subparts E (Labeling) and F (Placarding) of part 172 of this subchapter. Cartridges, small arms, and cartridges power devices that may be shipped as ORM-D material are limited to:

(i) Ammunition for rifle, pistol or shotgun;

(ii) Ammunition with inert projectiles or blank ammunition;

(iii) Ammunition having no tear gas, incendiary, or detonating explosive projectiles;

(iv) Ammunition not exceeding 12.7 mm (50 caliber or 0.5 inch) for rifle or pistol, cartridges or 8 gauge for shotshells; and

(v) Cartridges, power devices which are used to project fastening devices.

(2) Packaging for cartridges, small arms, and cartridges power devices as ORM-D material must be as follows:

(i) Ammunition must be packed in inside boxes, or in partitions which fit snugly in the outside packaging, or in metal clips;

(ii) Primers must be protected from accidental initiation;

(iii) Inside boxes, partitions or metal clips must be packed in securely-closed strong outside packagings;

(iv) Maximum gross weight is limited to 30 kg (66 pounds) per package; and

(v) Cartridges, power devices which are used to project fastening devices and 22 caliber rim-fire cartridges may be packaged loose in strong outside packagings.

(c)--(e) [Reserved]

(f) Detonators, containing up to
§ 173.63 Packaging Exceptions
(b) Limited quantities of Cartridges, small arms, and cartridges Cartridges, power devices, Cartridges for tools, blank, and Cases, cartridge, empty with primer.
(1)(i) Cartridges, small arms, and Cartridges power device (used to project fastening devices), Cartridges for tools, blank, and Cases, cartridge, empty with primer that have been classed as Division 1.4S explosive may be offered for transportation and transported as limited quantities when packaged in accordance with paragraph (b)(2) of this section.
§ 173.63 Packaging Exceptions Cont’d

Packages containing such articles may be marked with either the marking prescribed in § 172.315(a) or (b) of this subchapter and offered for transportation and transported by any mode.

- Either the Surface or Y-Mark Is Acceptable By Air
- Accessibility Doesn’t Apply
- PHMSA Plans To Phase Out The Y-Mark For Ammo
LQ/ORM-D REQUIREMENTS
For Ammo & Power Device Cartridges

Air Must Comply With 173.27:
- Max Inner Packages:
- 5kg In Fiber, 10 KG in Metal/Plastic

§ 173.63 Packaging Exceptions Cont’d
For transportation by aircraft, the package must conform to the applicable requirements of § 173.27 of this part.
and, effective July 1, 2011, Cartridge, power devices must be successfully tested under the UN Test Series 6(d) criteria for reclassification as limited quantity material. Effective January 1, 2012, Cartridge, power devices must be successfully tested under the UN Test Series 6(d) criteria for reclassification as limited quantity material for transportation by highway, rail or vessel. Packages containing such articles must be marked as prescribed in § 172.315.
§ 173.63 Cont’d: In addition, packages containing such articles offered for transportation by aircraft must be marked with the proper shipping name as prescribed in the § 172.101 Hazardous Materials Table of this subchapter.
Note That, Unlike Other Hazard Classes, No Hazard Label Is Required For Air
It Should Be Allowed
§ 173.63 Cont’d: Packages containing such articles are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or is offered for transportation and transported by aircraft or vessel.
§ 173.63 Cont’d: Additionally, packages containing these such articles are excepted from the requirements of subparts E (Labeling) and F (Placarding) of part 172 of this subchapter.
§ 173.63 Cont’d: (ii) Until December 31, 2012, a package containing such articles may be marked with the proper shipping name “Cartridges, small arms” or “Cartridges, power device for tools, blank (used to project fastening devices)” and reclassed as “ORM-D-AIR” material if it contains properly packaged articles as authorized by this subchapter on October 1, 2010. Additionally, for transportation by aircraft, Cartridges, power devices must be successfully tested under the UN Test Series 6(d) criteria for reclassification as ORM-D-AIR material effective July 1, 2011.

Until December 31, 2020, a package containing such articles may be marked with the proper shipping name “Cartridges, small arms” or “Cartridges, power device for tools, blank (used to project fastening devices)” and reclassed as “ORM-D” material if it contains properly packaged articles as authorized by this subchapter on October 1, 2010.
§ 173.63: (iii) Cartridges, small arms and Cartridges power devices for tools, blank, and Cases, cartridge empty with primer that may be shipped as a limited quantity or ORM-D material are as follows:
(A) Ammunition for rifle, pistol or shotgun;
(B) Ammunition with inert projectiles or blank ammunition;
ELIGIBLE CARTRIDGES

(C) Ammunition having no tear gas, incendiary, or detonating explosive projectiles; (D) Ammunition not exceeding 12.7 mm (50 caliber or 0.5 inch) for rifle or pistol, cartridges or 8 gauge for shotshells; and (E) Cartridges, power devices which are used to project fastening devices for tools, blank; and (F) Cases, cartridge, empty with primer.
§ 173.63: (b)(2) Packaging for Cartridges, small arms and eligible Cartridge, power devices, Cartridges for tools, blank, Cases, cartridge empty with primer as limited quantity or ORM-D material must be as follows:

(i) Ammunition must be packed in inside boxes, or in partitions which fit snugly in the outside packaging, or in metal clips;
§ 173.63: (ii) Primers must be protected from accidental initiation;

- Loose Jumble Pack Centerfire Ammo Is Eligible For 1.4S, But Not LQ/ORM-D
§ 173.63: (iii) Inside boxes, partitions or metal clips must be packed in securely-closed strong outside packagings;
§ 173.63: (iv) Maximum gross weight is limited to 30 kg (66 pounds) per package; and
§ 173.63: (v) Cartridges, power devices which are used to project fastening devices for tools, blank, Cases, cartridge, empty with primer, and 22 caliber rim-fire cartridges may be packaged loose in strong outside packagings.
LQ MARK

• The LQ marking must be durable, legible and of a size relative to the package that is readily visible.
• On at least one side or one end.
• Minimums: 2mm border and each side 100 mm
• Unless the package size requires a reduced size marking, then minimum 50 mm on each side.
• The top, bottom and border must be black, and the center white or a contrasting background
Except for air shipments:

- **When Marked With The Limited Quantity Marking.**
- **LQ Not Required To Be Marked With Proper Shipping Name Or UN Number (Except Air)**
- **Spec Packaging Not Required In US or Canada**
CHOOSING A SIZE

LQ MARK RECOMMENDED PLACEMENT

* Use 100mm mark if possible
* Else use 50mm diamond
* 50mm square last option
Unless Markings Are Visible, Overpacks Must Be Marked “OVERPACK” And Relevant LQ Mark
When intended for vessel, a cargo transport unit containing only LQ material must be suitably marked on each side or end with minimum dimensions of 250 mm on each side.
International Maritime Dangerous Goods Code

- IMDG Published By The International Maritime Organization (IMO)
- A UN Body, Meets In London On Biennium Basis
- Code Revised Every 2 Years
- Latest Edition: 36-12, January 1, 2013 (Replaces 35-10)
IMDG VS. 49 CFR

- IMDG Applies By Ocean
- ORM-D, Special Permits, NA #'s – Not Valid
- Ammunition Reverts To 1.4S
IMDG IN THE USA

DOT ALLOWS IMDG TO OVERIDE:
- If All Or Part Of The Voyage Is By Vessel
- Even If It Isn’t International

DOT STILL REQUIRES:
- Emergency Response Information
- Training
- Security Plans
- Incident Reporting
- Packaging Standards
- Registration
- EX #'s
1.1.4.2 IMDG ALLOWS IMDG TO OVERRIDE:

- Carriage In A Transport Chain Including Maritime
- Includes Packing, Marking & Labeling & Freight Container Placards.

ADR CONTRACTING PARTIES:

Albania, Andorra, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Montenegro, Morocco, Netherlands, Norway, Poland, Portugal, the Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, the former Yugoslav Republic of Macedonia, Tunisia, Turkey, Ukraine and United Kingdom.
IMDG GENERAL MARKINGS

- Markings Shall Be Identifiable On Packages Surviving 3 Months Immersion In The Sea
- Markings Must Include:
  - Proper Shipping Name
  - UN Number
  - Orientation Markings (For Liquids)
  - Package Specification Marking
IMDG LABELING

- US Labels Meet IMDG Specification
- Hazard Class Text Is Optional (Like The USA)
- Packages Receiving Approval (e.g. EX#'s) Must Use Their Country’s Design – Use USA Class 1 Labels
- Labels Are Minimum 100mm Per Side (Same As USA)
- Labels, Printed Or Stickers, Must Survive 3 Month’s Immersion In The Sea

Hazard Text Optional
1.4S MARKING

5.2.2.2.1.4 In addition, except for divisions 1.4, 1.5 and 1.6, labels for class 1 shall show in the lower half, above the class number, the division number and compatibility group letter for the substance or article. Labels for divisions 1.4, 1.5 and 1.6 shall show in the upper half the division number and in the lower half the class number and the compatibility group letter. For division 1.4, compatibility group S, no label is generally required. However, in cases where a label is considered necessary for such goods, it shall be based on model No. 1.4.

IMDG Code (Amrd. 36-12)

5.2.1 Marking of packages including IBCs

5.2.1.1 Unless provided otherwise in this Code, the Proper Shipping Name shall be displayed in accordance with 3.1.2 and the corresponding UN Number shall be displayed on each package. The UN number and the letters “UN” shall be of at least 30 L or 30 kg capacity or less and except for cylinders of at least 6 mm in height and for packagings of 5 L or 5 kg or less when they shall be of an appropriate size. In the case of unpackaged articles, the marking shall be displayed on the article, on its cradle or on its handling, storage or launching device. For goods of division 1.4, compatibility group S, the division and compatibility group letter shall also be marked unless the label for 1.4S is displayed. A typical package marking is:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (caprylyl chloride) UN 3265.
PLACARDS & CTU MARKING

- Cargo Transport Units Must Normally Be Placarded, e.g. Class 3 solvents
- No Placards For 1.4S

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## SEGREGATION TABLE

<table>
<thead>
<tr>
<th>CLASS</th>
<th>1.1</th>
<th>1.2</th>
<th>1.3</th>
<th>1.4</th>
<th>2.1</th>
<th>2.2</th>
<th>2.3</th>
<th>3.1</th>
<th>4.1</th>
<th>4.2</th>
<th>4.3</th>
<th>5.1</th>
<th>5.2</th>
<th>6.1</th>
<th>6.2</th>
<th>7.1</th>
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<tr>
<td>Explosives 1.1, 1.2, 1.5</td>
<td>*</td>
<td>*</td>
<td>*</td>
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<td>Explosives 1.3, 1.6</td>
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<td>Explosives 1.4</td>
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</table>

Same Results For Class 1 As Domestic Vessel

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**LQ CHANGES: CHAP 3.2**

- 5kg and SP364 on UN 0012, 0014, 0055
- New PSN on UN 0014 “Cartridges for tools, blank”
Chapter 3.3

Special provisions applicable to certain substances, materials or articles

3.3.1 When column 6 of the Dangerous Goods List indicates that a special provision is relevant to a dangerous good, the meaning and requirement(s) of that special provision are as set out below:

16 Samples of new or existing explosive substances or articles may be transported as directed by the competent authority for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are not wetted or desensitized shall be limited to 10 kg in small packages as specified by the competent authority. Explosive samples which are wetted or desensitized shall be limited to 25 kg.

364 This article may only be transported under the provisions of chapter 3.4 if, as presented for transport, the package is capable of passing the test in accordance with Test Series 6(d) of Part I of the Manual of Tests and Criteria as determined by the competent authority.
Chapter 3.4

Dangerous goods packed in limited quantities

3.4.1 General

3.4.1.1 This chapter provides the provisions applicable to the transport of dangerous goods of certain classes packed in limited quantities. The applicable quantity limit for the inner packaging or article is specified for each substance in column 7a of the Dangerous Goods List of chapter 3.2. In addition, the quantity “0” has been indicated in this column for each entry not permitted to be transported in accordance with this chapter.

3.4.1.2 Limited quantities of dangerous goods packed in such limited quantities, meeting the provisions of this chapter, are not subject to any other provisions of this Code except the relevant provisions of:

.1 Part 1, chapters 1.1, 1.2 and 1.3;
.2 Part 2;
.3 Part 3, chapters 3.1, 3.2, 3.3;
.4 Part 4, 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8;
.5 Part 5, 5.1.1 except 5.1.1.4, 5.1.2.3, 5.2.1.7, 5.2.1.9, 5.3.2.3, 5.3.2.4, and chapter 5.4;
.6 Part 6, construction requirements of 6.1.4, 6.2.1.2 and 6.2.4;
.7 Part 7, 7.1.3.2, 7.6.3.1 and 7.3 except 7.3.3.15 and 7.3.4.1.
3.4.2 Packing

3.4.2.1 Dangerous goods shall be packed only in inner packagings placed in suitable outer packagings. Intermediate packagings may be used. In addition, for articles of Division 1.4, Compatibility Group S, the provisions of section 4.1.5 shall be fully complied with. The use of inner packagings is not necessary for the transport of articles such as aerosols or “receptacles, small, containing gas”. The total gross mass of the package shall not exceed 30 kg.

3.4.2.2 Except for articles of Division 1.4, Compatibility Group S, shrink-wrapped or stretch-wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings for articles or inner packagings containing dangerous goods transported in accordance with this chapter. Inner packagings that are liable to break or be easily punctured, such as those made of glass, porcelain, stoneware or certain plastics, shall be placed in suitable intermediate packagings meeting the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8, and be so designed that they meet the construction requirements of 6.1.4. The total gross mass of the package shall not exceed 20 kg.

3.4.3 Stowage

Dangerous goods packed in limited quantity are allocated stowage category A as defined in 7.1.3.2. The other stowage provisions indicated in column 16 of the Dangerous Goods List are not applicable.

• SAAMI changes include 1.4S LQ remaining as spec packaging
• Note 3.4.3 stowage exception into Category A:
3.4.4 Segregation

...  

3.4.4.2 The segregation provisions of chapter 7.2 are not applicable for packagings containing dangerous goods in limited quantities or in relation to other dangerous goods.

- LQ Is Not Subject To Segregation
- Ammo Can Now Ship In The Same Container With Other Dangerous Goods, e.g. Aerosol And Flammable Liquid Accessories.
7.1.3 Stowage categories

7.1.3.1 Stowage categories for class 1

Dangerous goods of class 1 other than division 1.4, compatibility group S, packed in limited quantities shall be stowed as indicated in column 16 of the Dangerous Goods List in accordance with one of the categories specified below.

- **Stowage category 01**
  - Cargo ships (up to 12 passengers): On deck in closed cargo transport unit or under deck
  - Passenger ships: On deck in closed cargo transport unit or under deck

7.1.3.2 Stowage categories for classes 2 to 9

Dangerous goods of classes 2 to 9 and division 1.4, compatibility group S, packed in limited quantities shall be stowed as indicated in column 16 of the Dangerous Goods List in accordance with one of the categories specified below:

- **Stowage category A**
  - Cargo ships or passenger ships carrying a number of passengers limited to not more than 25 or to 1 passenger per 3 m of overall length, whichever is the greater number: ON DECK OR UNDER DECK
  - Other passenger ships in which the limiting number of passengers transported is exceeded: ON DECK OR UNDER DECK
Safety of Life at Sea
SOLAS Chapter II-2 Regulation 19
Carriage of Dangerous Goods
Purpose:
• Measures to address fire safety - Includes provisions for:
  – Water supplies, Sources of ignition, detection systems, ventilation, bilge pumping, fire extinguishers, insulation, water spray systems, etc.
• Document of Compliance
  – Based on construction criteria specifies where DG may be stowed
• Limited Quantities
  – Excepted from SOLAS - Governed by IMDG Code
IMDG 1.4S LQ

- No Label
- No Proper Shipping Name or UN#
- No Segregation!
- Stowage Category A
- SOLAS Exception
LIMITED QUANTITIES

For air or vessel, the description of a “limited quantity,” must include the words “Limited Quantity” or “Ltd Qty” following the basic description.

LQ exempted from shipping paper for ground shipments.
### CLASS 1 SEGREGATION

Segregation shall also take account of a single subsidiary risk label.

| CLASS | 1.1 1.2 1.5 | 1.3 1.6 | 1.4 | 2.1 | 2.2 | 2.3 | 3 | 4.1 | 4.2 | 4.3 | 5.1 | 5.2 | 6.1 | 6.2 | 7 | 8 | 9 |
|-------|-------------|---------|-----|-----|-----|-----|---|-----|-----|-----|-----|-----|-----|----|---|---|
| Explosives | 1.1, 1.2, 1.5 | * | * | * | 4 | 2 | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 2 | 4 | 2 | X |
| Explosives | 1.3, 1.6 | * | * | * | 4 | 2 | 2 | 4 | 3 | 3 | 4 | 4 | 4 | 2 | 4 | 2 | 2 | X |
| Explosives | 1.4 | * | * | * | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | X | 4 | 2 | 2 | X |

The numbers and symbols in the table have the following meanings:

1 – “Away from”;
2 – “Separated from”;
3 – “Separated by a complete compartment or hold from”;
4 – “Separated longitudinally by an intervening complete compartment or hold from”.
X – The Dangerous Goods List has to be consulted to verify whether there are specific segregation provisions.

- 1.4 Very Restricted
- No Dispensation for 1.4S
OCEAN INITIATIVE

- ANALYSIS
- INFORMATION SHARING
- PARTNERSHIPS
- CHANGE
Port Policies

- National Explosives Legislation
- Class 1 Prohibitions
- Weight & Time Restrictions
- Night Movement Prohibition
- Special Docks & Berths
- Military Vs. Commercial
- End User Statement Formats Differ
- Written Permission Before Booking
### NATIONAL/PORT REGULATIONS

- National Explosives Legislation Varies
- Affects Port Regulations
- Difficulties in Obtaining
- Multiple Languages

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<th>INHOUDSOPGAVE</th>
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<tr>
<td><strong>SECTIE I</strong> ALGEMENE VOORSCHRIFTEN VOOR HET BEHANDELLEN VAN GEVAARLIJKE GOEDEREN IN DE HAVEN VAN ANTWERPEN.</td>
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<tr>
<td>A. Index</td>
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<tr>
<td>B. Algemene voorschriften voor het behandelen van gevaarlijke en/of verontreinigende goederen in de haven van Antwerpen</td>
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<tr>
<td>C. Documentatie – Praktische Indicaties</td>
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<tr>
<td><strong>SECTIE II</strong> BIJZONDERE VOORWAARDEN VOOR HET BEHANDELLEN VAN GEVAARLIJKE GOEDEREN OP DOORVOEROPSLAGPLAATSEN GELEGEN OP DE VOORKAJEN.</td>
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<tr>
<td>B. Bijzondere voorwaarden voor het behandelen van gevaarlijke goederen op doorvoeropslagplaatsen gelegen op de voorkajen</td>
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<td>C. Documentatie – Praktische Indicaties</td>
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<td>C. Documentatie – Praktische Indicaties</td>
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<td>A. Index</td>
</tr>
<tr>
<td>B. Bijzondere bepalingen voor het behandelen van technisch zuiver ammoniumnitrat en geelgesterde mengsels in de haven van Antwerpen</td>
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<tr>
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<td>B. BIJZONDERE BEPALINGEN VOOR HET BEHANDELLEN IN DE HAVEN VAN ANTWERPEN VAN AMMONIUMNITRATEMISTSTOFFEN samengesteld uit een instroom mengsel van ten hoogste 80% ammoniumnitrat en ten minste 20% rijm gemalen taalconen, met een STIKSTOFGEHALTE (N) dat 28%, NIET OVERSCHIJDT, die ontheffing gesteld voor in art. 2b van het K.B. van 30/1956, gewijzigd bij K.B. van 12/1960.</td>
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## WEIGHT RESTRICTIONS

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<td>Night</td>
<td>Day</td>
</tr>
<tr>
<td></td>
<td>Working</td>
<td>Entry</td>
<td>Working</td>
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</table>

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NIGHT PROHIBITION OF EXPLOSIVES LOADING

- Some Ports Do Not Allow Loading/Unloading at Night
Lightering

- Port Prohibitions May Require Lightering
- Container Removed Temporarily At Great Expense
- Trans-shipment And Barge Activity Create Additional Issues
CHARTER SERVICE

- Liner Limitations May Be Solved By Feeder Charters
- May Triple The Cost
INEFFICIENCIES

- Irregular scheduling interrupts supply
- Impossible to plan production of material (no Just-in-Time)
- Customer timing of proper paperwork filing at receiving port, critical since this material must leave ports immediately
- Lightering and Charter Service – Long Transit Times / High Cost (so high in most cases, we are not competitive)
Is CLASS 1 “The Worst”??

A Perception Exists That Explosives Are Far More Dangerous Than All Other Goods
However...

- Chlorine is used to treat drinking water & prevent disease, e.g. cholera.
- A chlorine plume from a transport incident can far exceed the consequences of any explosive.

Potential Affected Area Far Exceeds Explosives.
I SEE ORANGE!

- Explosives Vary Widely
- People See Orange And Don’t Differentiate

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1.4S DEFINITION

Substance or article so packed or designed that (1) any hazardous effects arising from accidental functioning are confined within the package (2) unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package. (Italics added)
FIRE FIGHTING

- Fire Fighting Allowed For Dangerous Goods
- “S” Is Only Explosive For Which A Fire May Be Combatted
1.4S CRITERIA:
- No Mass Explosion
- No Metal Projectiles Hazardous To Fire Fighters
- No Flame Balls >4m Diameter
- No Fiery Projections >5m
- Must Burn >330 seconds/100kg

All blast or projection effects … do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.
### Deregulation

#### Class 3 Example

2.3.2.6  *Hazard grouping based on flammability*

<table>
<thead>
<tr>
<th>Packing group</th>
<th>Flash point (closed-cup)</th>
<th>Initial boiling point</th>
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<tbody>
<tr>
<td>I</td>
<td>--</td>
<td>≤ 35 °C</td>
</tr>
<tr>
<td>II</td>
<td>&lt; 23 °C</td>
<td>&gt; 35 °C</td>
</tr>
<tr>
<td>III</td>
<td>≥ 23 °C ≤ 60 °C</td>
<td>&gt; 35 °C</td>
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#### Class 6 Example

**GROUPING CRITERIA FOR ADMINISTRATION THROUGH ORAL INGESTION, DERMAL CONTACT AND INHALATION OF DUSTS AND MISTS**

<table>
<thead>
<tr>
<th>Packing group</th>
<th>Oral toxicity ( \text{LD}_{50} ) (mg/kg)</th>
<th>Dermal toxicity ( \text{LD}_{50} ) (mg/kg)</th>
<th>Inhalation toxicity by dusts and mists ( \text{LC}_{50} ) (mg/l)</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>≤ 5.0</td>
<td>≤ 50</td>
<td>≤ 0.2</td>
</tr>
<tr>
<td></td>
<td>&gt; 5.0 and ≤ 50</td>
<td>&gt; 50 and ≤ 200</td>
<td>&gt; 0.2 and ≤ 2.0</td>
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<tr>
<td></td>
<td>&gt; 50 and ≤ 300</td>
<td>&gt; 200 and ≤ 1 000</td>
<td>&gt; 2.0 and ≤ 4.0</td>
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<tr>
<td>II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III(^a)</td>
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</table>

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Class 1 - No Deregulation Based on Safety

1.4S is the Best you can get regardless of safety
OTHER DG MAY FAIL 1.4S
“…unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.”
## LQ Versus Vessel Delay & Denial

<table>
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<tr>
<th>CLASS</th>
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<th>1.2</th>
<th>1.3</th>
<th>1.4</th>
<th>1.5</th>
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<tr>
<td>Explosives 1.1, 1.2, 1.5</td>
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<td>desensitized explosives) 4.1</td>
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</tbody>
</table>

- X’s Are Good
- Numbers Mean Not In The Same Container
- 1.4S ships with 6.1 & 9 only
- LQ ships with EVERYTHING
### STOWAGE CATEGORY A

<table>
<thead>
<tr>
<th>Stowage category 01</th>
<th>Cargo ships (up to 12 passengers)</th>
<th>On deck in closed cargo transport unit or under deck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger ships</td>
<td></td>
<td>On deck in closed cargo transport unit or under deck</td>
</tr>
</tbody>
</table>

**Stowage category A**

Cargo ships or passenger ships carrying a number of passengers limited to not more than 25 or to 1 passenger per 3 m of overall length, whichever is the greater number.

Other passenger ships in which the limiting number of passengers transported is exceeded.

- **3.4.3 Stowage** Dangerous goods packed in limited quantity are allocated stowage category A as defined in 7.1.3.2. The other stowage provisions indicated in column (16) of the Dangerous Goods List are not applicable.
- **No CTU Required - Ferries**
“Safe Transport of Dangerous Cargoes In Port Areas”

“The regulatory authority should grant any exemption necessary from their requirements in the case of explosives in class 1, division 1.4, compatibility group S in accordance with the IMDG Code.”

6
GENERAL RECOMMENDATIONS FOR REGULATORY AUTHORITIES, PORT AUTHORITIES, SHIPS, BERTH OPERATORS AND CARGO INTERESTS

6.1 Regulatory authorities and port authorities

6.1.1 Acceptability of dangerous cargoes in port areas

6.1.1.1 The regulatory authority should determine the classes and quantities of dangerous cargoes which may be permitted to transit or to enter a port area by any mode of transport and the conditions under which they are to be handled, having regard to the facilities available for the reception and keeping of dangerous cargoes and the location of the port area in relation to nearby installations and centres of population. The regulatory authority should make such information available in the national and, where appropriate, English languages.

Safe Transport of Dangerous Cargoes in Port Areas

12 EXPLOSIVES IN CLASS 1, DIVISION 1.4, COMPATIBILITY GROUP S

12.1 The regulatory authority should grant any exemption necessary from their requirements in the case of explosives in class 1, division 1.4, compatibility group S in accordance with the IMDG Code.
"The Committee remains concerned about the potential adverse effects the denial of shipment of dangerous cargoes might have on international trade and expeditious handling and shipment of such cargoes."
Ammunition Is Different

• 1:1,000,00 Firearm Failure Rate Results In Recall
• More Controlled Than Classification Tests.
SAAMI VIDEOS

Sporting Ammunition and the Fire Fighter

- Unlikely To Ignite
- Regardless of Packaging:
  - Does Not Propagate
  - No Mass Explosion
- Fire Fighters Can Control Large Fire In 10 Seconds
UN 0161 Powder, smokeless

- Tens of Millions Lbs. Transported Safely Annually
- 2.5 Million Lbs. Per Year By Ocean.
- Propellant Producers Are Major US Corporations

© 2013 Sporting Arms and Ammunition Manufacturers’ Institute, Inc. (SAAMI) and DG Advisor, LLC
Modern Process

- All Process Variables Rigorously Controlled.
- Computer Controlled Systems
- Statistics Process Control
- Thorough In-Process Testing.
Quality Control

Finished Propellants Undergo Complete Acceptance Testing.
• Product Stability
• Chemical Composition
• Physical Specifications
• Ballistics.
UN Classification Testing

- All Propellants Meet UN Test Series 3 & 6
- Competent Authority Approved
Tight Specifications

- ISO 9001 (Quality System)
- ISO 14001 (Environmental System)
- OHSAS 18001 (Safety System)
- Registrar Performs 6-Month Audits

© 2013 Sporting Arms and Ammunition Manufacturers’ Institute, Inc. (SAAMI) and DG Advisor, LLC
UN 0161 Powder, Smokeless

- Loads Are Containerized In Accordance With All Applicable Specifications.
- Each Container Inspected And Accepted Prior To Release For Shipment.
CONCLUSION

- ANALYSIS
- INFORMATION SHARING
- PARTNERSHIPS
- CHANGE
AIR FREIGHT

SAAMI
SPORTING ARMS AND AMMUNITION MANUFACTURERS’ INSTITUTE, INC.
SINCE 1926

2013 LOGISTICS SEMINAR
- Ammunition & Components –

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The TI

- TI Published By The International Civil Aviation Organization (ICAO)
- A UN Body, Meets In Montreal On Biennium Basis
- Code Revised Every 2 Years
- Latest Edition:
OTHER REGULATIONS

- DGR Published By The International Air Transport Association (IATA)
- AIR Shipper – Labelmaster Field Manual
- Published Yearly
- Extras – Operator Variations, Guidance, IATA Requirements
ICAO VS. 49 CFR

- TI Applies
- ORM-D, NA #'s – Not Valid
- Ammunition Reverts To 1.4S
- State Variations

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Old System

1.4S AIR VS. 1.4S SURFACE

- Extra Markings
  - 1.4S Label
  - 25kg Net Package Max
  - Consignee Address

- No Physical Difference
  - No Redundant Closures
  - No Leak Testing

Still Applies To Primers

ABC AMMO COMPANY
12345 Wind River Avenue
Pinedale, TX 54542

TO: DEFG COMPANY
123 QUELS RUE
12345 PARIS FRANCE

u
4G/Y17.4/S/11
USA/+CA304

NET WEIGHT: 14.5 KG

ADDITIONAL LABOR FOR AIR
LQ DIFFERENCES
AIR VS. SURFACE

- Air Is More Strict
- Spec Packaging Is Only Exception
- Air Combination Package Max Typically Equals Surface Inner Package Max
- ID 8000 More Like Surface LQ, e.g. 30 Kg, But Products Are Few
# LQ EXCEPTIONS

<table>
<thead>
<tr>
<th>LQ EXCEPTION</th>
<th>ICAO</th>
<th>IMO</th>
<th>US GROUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIPPING PAPER</td>
<td>-</td>
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<tr>
<td>UN &amp; PSN</td>
<td>-</td>
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<td>X</td>
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<tr>
<td>HAZARD LABEL</td>
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<tr>
<td>PLACARDS</td>
<td>N/A</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Spec Packaging</td>
<td>X*</td>
<td>X</td>
<td>X</td>
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</table>

* LQ WEIGHT LIMITS DO NOT ALIGN BETWEEN AIR AND SURFACE

- UN REQUIRES SPEC PACKAGE FOR LQ AMMO
- NO ADVANTAGE BY AIR EXCEPT HARMONIZATION
- AMMO IS NOT LQ IN ICAO
Ammo Requires Spec Package In UN
Spec Packaging Is Only Exception
No Sense To Give LQ
Allow And Ignore
Practical Harmonization Issues
5;2.4.13 Markings Required By Other Modes of Transport

Markings required by other international or national transport regulations are permitted in addition to markings required by these Instructions, provided that they cannot be confused or conflict with any markings prescribed by these Instructions, because of their colour, design or shape.
ICAO DECISION CONSEQUENCES

- Air Carriers Individually Refused To Allow & Ignore
- EU Road Inspectors Objected To Hazard Label With Surface LQ Mark
- Labor Cost To Obliterate LQ

LABOR TO OBLITERATE SURFACE LQ MARK

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SAAMI GOES BACK TO ICAO

- ICAO REAFFIRMS NO LQ
- Not Just An Ammo Issue
- ICAO Commits To Web Site Guidance
- IATA Members Begin To Accept Surface LQ Mark
- IATA Will Include Guidance In 2014 DGR
NEW ICAO GUIDANCE (draft)

Limited Quantity for Air
  – Acceptable for Road and Sea as per UN 3.4.9

Hazard Label

Name and Address of Shipper and Consignee

Package Orientation Labels (2x)

Proper Shipping Name, UN number and Net Quantity

Shipper:
ADVANCE CHEMICAL CO.
345 MAIN STREET
REIGATE, SURREY
ENGLAND

UN 1090
Acetone
net qty: 1L

Consignee:
IMCOCHEM
14 RUE ST.JOSEPH
MONTREAL, QC
CANADA
Limited Quantity Road and SEA
– Not acceptable for AIR

Shipper:
ADVANCE CHEMICAL CO.
345 MAIN STREET
REIGATE, SURREY
ENGLAND

Consignee:
IMCOCHEM
14 RUE ST.JOSEPH
MONTREAL, QC
CANADA

NOT ALLOWED FOR AIR TRANSPORT
Limited Quantity Road and SEA – Fully Regulated for AIR – Proposed new UNMR 3.4.10

Acetone Limits
- Air: 1L Max Package
- Surface: 30Kg Max By Surface, 1L Max
Limited Quantity Road and SEA – Fully Regulated for AIR – Proposed new UNMR 3.4.10

Hazard Label

Name and Address of Shipper and Consignee

Shipper: Mecar Rue Grinfaux 50 B-7181 Nivelles BELGIUM

Consignee: IMCOCHEM 14 Rue ST. JOSEPH MONTREAL, QC CANADA

UN 0012 Cartridges, small arms

Ammo Is Never LQ Air in ICAO
2014 IATA Will Contain Similar Guidance Per Dangerous Goods Board Decision Sept 2012
SAAMI GOES BACK TO UN

- UNMR 18TH Edition Will Contain New 3.4.10 And Include Previous Pictures In Guiding Principles
- ADR Expected To Follow in 2015

3.4.10 Packages containing dangerous goods in limited quantities bearing the marking shown in 3.4.7 and conforming with the provisions of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, including all necessary marks and labels specified in Parts 5 and 6, shall be deemed to meet the provisions of section 3.4.1 as appropriate and of sections 3.4.2 to 3.4.4 when transported by land or by sea.
MEANWHILE IN THE USA

- HM215K Specified Y Mark For US Air
- ICAO Forbids Y-Mark
USA 175.75 ACCESSIBILITY

- 25 Kg Shipment Limit
- Doesn’t Apply To LQ/ORM-D, Applies To 1.4S
- Prevents Cargo On Most Passenger Aircraft
- Prevents Containerization On Cargo Aircraft
- Requires Cargo Aircraft Out Of US
- Some Countries May Only Practically Be Reached By Passenger Aircraft
- ITAR Ammo Chain of Custody Requirements Prevent Interlining
- Some Carriers Charge Extra For Accessible
§ 173.27(f)(2) Limited Quantities

Materials or articles not authorized as limited quantity by aircraft are:

… (B) Class 1 (explosive) material (see § 173.63(b) of this part for exceptions provided to certain articles of Division 1.4S) …

Table 3
Class 1… Forbidden (See Note)
Note: See § 173.63(b) of this part for exceptions provided to certain articles of Division 1.4S
SAAMI PETITION FOR RULEMAKING

- HM215K Appeal Results Inadequate
- Petition Requested Additional Clarity That Surface Mark Eliminates 175.75
- Notes Issues Caused For Exports By Accessibility
- Incorporated Into HM215L
§ 173.63 Packaging Exceptions Cont’d

Packages containing such articles may be marked with either the marking prescribed in §172.315(a) or (b) of this subchapter and offered for transportation and transported by any mode.

- HM215L: Either the Surface or Y-Mark Is Acceptable By Air
- Accessibility Doesn’t Apply With Surface Mark
- PHMSA Plans To Phase Out The Y-Mark For Ammo
IMPACTS

- LQ Surface Mark Good For All Modes Everywhere
- Eliminates US Accessibility Requirements
- No Interlining For Remote Destinations
  - Chain of Custody Requirements Prevent Interlining
  - Use The Appropriate National Passenger Carrier
§ 173.63 Packaging Exceptions Cont’d

In addition, packages containing such articles offered for transportation by aircraft must be marked with the proper shipping name as prescribed in the § 172.101 Hazardous Materials Table of this subchapter.
UN# AND PSN SOLUTIONS FOR DOMESTIC AIR

ABC AMMO COMPANY
12345 Wind River Avenue
Pinedale, TX 54542

UN0012
SMALL ARMS
1.4S

ABC AMMO COMPANY
12345 Wind River Avenue
Pinedale, TX 54542

UN0012
SMALL ARMS

Some Carriers Stop 1.4S Labeled Boxes
BY THE WAY

- TI 2013-2014 Includes “Cartridges for tools, blank” Proper Shipping Name for UN 0014
POWER DEVICE CARTRIDGES

SAAMI®

SPORTING ARMS AND AMMUNITION MANUFACTURERS’ INSTITUTE, INC.
SINCE 1926

2013 LOGISTICS SEMINAR
- Ammunition & Components –

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“POWER LOADS”

Used In:
- Nail Guns For Concrete And Metal
- Other Tools
- Electric Circuit Breakers
FOR NAIL GUNS

Available In:
- 22 Caliber (Home Use)
- 25 Caliber
- 27 Caliber
NAILS

Nails In Strips Also
FASTENING STEEL TO STEEL

- Powerful
- Quick
- Dependable
HIGH QUALITY CONTROL

- 1/100 Function Tested
- Speed
- Power
- Loading
Power device cartridges used to project fastening devices are sold at retail for home improvement.
STATISTICS

- Annual production in North America & Europe: 3.3 Billion
- Used by 200,000 construction companies in the EU
- EU tools made/sold by 400 companies = 4 -4.5K employees

Source: Business Plan of CEN-TC213
MANUFACTURING STEP 1: PRIMED CASES

- Power Device Cartridges Are Similar To Blank Ammunition, and Begin With Primed Rim-fire Cases
STEP 2: SMOKELESS POWDER

- Smokeless Propellant is Placed In Primed Rim-Fire Cases
Cartridges Are Crimped
STEP 4: LACQUER

- Lacquer Seals
- The Cartridges
- Color Coded
- Power Level
STEP 5: STRIP

- Cartridges Inserted In Strips For Efficient Use In Tools
INNER / INTERMEDIATE PACKAGING

Typical Inner Configuration:
- 100/Inner And 1K/Intermediate; or -
- 1K/Inner

Typical Outer Configuration:
- 10K/Combination Packaging

100 Inners, 10/Intermed.

1,000

100 Loose
LONG STRIP VARIANT

- 40 Power Loads / Strip
- 20K Per Package
OLD:
- UN 0323, Cartridges, power device, 1.4S. (ORM-D Until 12/31/20). Requires 6(d) Test.

NEW:
- UN 0014, Cartridges for tools, blank, 1.4S, PG II, Ltd Qty No 6(d) Test
READY TO SHIP

- Can Be >1 Million Per Pallet
- North America / Europe
- Annual Production: 3.3 Billion
6(D) TEST ON POWER LOADS

- Pass The Test Easily
- Required For UN 0323
## HM215L REGULATORY CHANGES

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous materials descriptions and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special Provisions (§ 172.102)</th>
<th>Packaging (§ 173.***</th>
<th>Quantity limitations (see §§ 173.27 and 175.75)</th>
<th>Vessel stowage</th>
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<tr>
<td>(1)</td>
<td>(2)</td>
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<td>REMOVE</td>
<td>Cartridges for weapons, blank or Cartridges, small arms, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
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<td>UN0014</td>
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<td>None</td>
<td>62</td>
<td>None</td>
</tr>
</tbody>
</table>

- **New Proper Shipping Name** “Cartridges for tools, blank”
- **Typo**, 1.4S Label Should be “None”
- **Stowage Changed Like All Class 1**
- **UN 0323 OK For ORM-D Not LQ**
In § 173.56 paragraph (h)(2) is revised to read as follows:

(h) The requirements of this section do not apply to cartridges, small arms which are:

1. Not a forbidden explosive under § 173.54 of this subchapter;
2. Ammunition for rifle, pistol, or shotgun, or tools;
3. Ammunition with inert projectile or blank ammunition; and
4. Ammunition not exceeding 50 caliber for rifle or pistol cartridges or 8 gauge for shotgun shells.
Definition of Cartridges, Blank in 173.59 Amended:

* * * * *
Cartridges, blank. Articles that consist of a cartridge case with a center or rim fire primer and a confined charge of smokeless or black powder, but no projectile. Used in training, saluting, or in starter pistols, tools, etc.
* * * * *
§ 173.63 Packaging exceptions.

(b) Limited quantities of Cartridges, small arms, Cartridges, power devices, Cartridges for tools, blank, and Cases, cartridge, empty with primer.

- 173.63(b) Assigns Small Arms Cartridges To ORM-D and LQ
- Modified Throughout For New PSN “Cartridges for tools, blank”
- ORM-D Extended Until December 31, 2020
173.63(b)(2)(v)
Cartridges for tools, blank, Cases, cartridge, empty with primer, and 22 caliber rim-fire cartridges may be packaged loose in strong outside packagings.
OLD VS. NEW MARKINGS

UN # & Proper Shipping Name Are Optional
SHIPPING PAPERS

- Not Required For Ground Shipments In US or Europe
- Use Equivalency Certificate in Canada
- For Ocean & US Air Shipments, Basic Shipping Description Is:
  “UN 0014, Cartridges for tools, blank, 1.4S, PG II, LTD QTY”
- For International Air Shipments, No LQ; Basic Shipping Description Is:
  “UN 0014, Cartridges for tools, blank, 1.4S, PG II”
An explosive means any substance or article, including a device, which is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion, unless the substance or article is otherwise classed under the provisions of this subchapter.
<table>
<thead>
<tr>
<th>Sym</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions</th>
<th>(8) Packaging (§173.***)</th>
<th>(9) Quantity limitations</th>
<th>(10) Vessel stowage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>Exce-ptions (8A)</td>
<td>Non-bulk (8B)</td>
<td>Bulk (8C)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Passenger aircraft/rail</td>
<td>Cargo aircraft only</td>
<td>Location (10A)</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(9A)</td>
<td>(9B)</td>
<td>(10A)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartridges for weapons, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
</tr>
<tr>
<td>Cartridges, small arms, blank</td>
<td>1.4S</td>
<td>UN0012</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
</tr>
<tr>
<td>or Cartridges for tools, blank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartridges for weapons, inert projectile or Cartridges, small arms</td>
<td>1.4S</td>
<td>UN0055</td>
<td>II</td>
<td>1.4S</td>
<td>50</td>
<td>63</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
</tr>
<tr>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
<td>UN0509</td>
<td>II</td>
<td>1.4C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Powder, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
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<tr>
<td>Powder, smokeless</td>
<td>1.4C</td>
<td>UN0509</td>
<td>II</td>
<td>1.4C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4S</td>
<td>UN0044</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>II</td>
<td>1.4B</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Propellant, solid</td>
<td>1.3C</td>
<td>UN0499</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Propellant, solid</td>
<td>1.4C</td>
<td>UN0501</td>
<td>II</td>
<td>1.4C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Smokeless powder for small arms</td>
<td>4.1</td>
<td>NA3178</td>
<td>II</td>
<td>4.1</td>
<td>16</td>
<td>None</td>
<td>171</td>
<td>None</td>
<td>Forbidden</td>
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</tbody>
</table>
### 1.3 CLASSIFICATIONS

<table>
<thead>
<tr>
<th>UN Code</th>
<th>Description</th>
<th>Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 0488</td>
<td>Ammunition, practice</td>
<td>1.3G</td>
</tr>
<tr>
<td>UN 0335</td>
<td>Fireworks</td>
<td>1.3G</td>
</tr>
<tr>
<td>UN 0161</td>
<td>Powder, smokeless</td>
<td>1.3C</td>
</tr>
<tr>
<td>UN 0499</td>
<td>Propellant, solid</td>
<td>1.3C</td>
</tr>
<tr>
<td>UN 0093</td>
<td>Flares, aerial</td>
<td>1.3G</td>
</tr>
<tr>
<td>UN 0359</td>
<td>Substances, explosive, n.o.s</td>
<td>1.3L</td>
</tr>
</tbody>
</table>

Division 1.3 consists of explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.
## 1.4 CLASSIFICATIONS

Division 1.4 consists of explosives that present a minor explosion hazard. The explosive effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 0378</td>
<td>Primers, cap type</td>
<td>1.4B</td>
</tr>
<tr>
<td>UN 0509</td>
<td>Powder, smokeless</td>
<td>1.4C</td>
</tr>
<tr>
<td>UN 0012</td>
<td>Cartridges, small arms</td>
<td>1.4S</td>
</tr>
<tr>
<td>UN 0494</td>
<td>Jet perforating guns, charged, \textit{oil well, without detonator}</td>
<td>1.4D</td>
</tr>
<tr>
<td>UN 0055</td>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
</tr>
</tbody>
</table>
## Compatibility Group S

<table>
<thead>
<tr>
<th>UN</th>
<th>Description</th>
<th>Compatibility Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>0441</td>
<td>Charges, shaped, <em>without detonator</em></td>
<td>1.4S</td>
</tr>
<tr>
<td>0456</td>
<td>Detonators, electric <em>for blasting</em></td>
<td>1.4S</td>
</tr>
<tr>
<td>0012</td>
<td>Cartridges, small arms</td>
<td>1.4S</td>
</tr>
<tr>
<td>0014</td>
<td>Cartridges, small arms, blank</td>
<td>1.4S</td>
</tr>
<tr>
<td>0055</td>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
</tr>
</tbody>
</table>

Compatibility Group S consists of substances or articles so packed or designed that any hazardous effects arising from accidental functioning are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package.
<table>
<thead>
<tr>
<th>CLASSIFICATION CONSEQUENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3C Powder</td>
</tr>
<tr>
<td>Burn Testing</td>
</tr>
<tr>
<td>Shipping Paper</td>
</tr>
<tr>
<td>Marking</td>
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<td>Labels</td>
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<td>Placards</td>
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<tr>
<td>Emergency Response</td>
</tr>
<tr>
<td>Training</td>
</tr>
<tr>
<td>Security Plan</td>
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<tr>
<td>CDL</td>
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<td>FMCSAHMSP</td>
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<tr>
<td>$5MM Insurance</td>
</tr>
<tr>
<td>Attendance</td>
</tr>
<tr>
<td>Package Testing</td>
</tr>
<tr>
<td>HazMat Fee</td>
</tr>
<tr>
<td>Air Transport</td>
</tr>
</tbody>
</table>

Only ammunition may be shipped or taken as checked baggage on passenger aircraft.
“Unless otherwise provided in this subpart, no person may offer for transportation or transport an explosive, unless it has been tested and classed and approved...

- Self-Classification Is Usually Not Allowed – Written Approval Required
- Packaging May Be Limited To the Approved
Cartridges, small arms – Ammunition consisting of a cartridge case fitted with a center or rim fire primer and containing both a propelling charge and solid projectile(s). They are designed to be fired in weapons of caliber not larger than 19.1 mm. Shotgun cartridges of any caliber are included in this description. The term excludes: Cartridges, small arms, blank, and some military small arms cartridges listed under Cartridges for weapons, inert projectile.
1.4S AMMUNITION SELF-CLASSIFICATION

Max 19.1mm (3/4”), Except:

• 49 CFR 173.56(h): In the US, small arms ammunition may be self classified as 1.4S when:
  * For rifle, pistol or shotgun
  * <= 50 cal (12.7mm) or 8 gauge
  * Inert or blank (no incendiary, exploding projectiles, etc.)
# APPROVING AN EXPLOSIVE

## Section 172.101 Hazardous Materials Table

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions</th>
<th>(8) Packaging (§173.***</th>
<th>(9) Quantity limitations</th>
<th>(10) Vessel stowage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Cartridges for weapons, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63 62 None 25 kg 100 kg 5 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cartridges for weapons, blank projectile or Cartridges, small arms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63 None None 30 kg gross 30 kg gross A -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cartridges, power device (used to project fastening devices)</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63 None None 30 kg gross 30 kg gross A -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63 None None 30 kg gross 30 kg gross A -</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pow der, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>None 62 None 25 kg 100 kg 5 -</td>
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<tr>
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<td>Primers, cap type</td>
<td>1.4S</td>
<td>UN0044</td>
<td>II</td>
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<td>None 62 None 25 kg 100 kg 05 -</td>
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</tr>
<tr>
<td></td>
<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>II</td>
<td>1.4B</td>
<td>None 62 None 25 kg 100 kg 07 -</td>
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<td></td>
<td></td>
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<tr>
<td>D</td>
<td>Smokeless pow der for small arms</td>
<td>4.1</td>
<td>NA3178</td>
<td>II</td>
<td>4.1</td>
<td>None 171 None Forbidden 7.3 kg A -</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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173.62 PACKING INSTRUCTIONS

- Non-bulk explosives packaging is limited to prescribed types and combinations
- Each UN number is assigned to a packing instruction
- Each packing instruction lists the permitted types of inner, intermediate and outer packagings which are allowed

<table>
<thead>
<tr>
<th>ID#</th>
<th>PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN0010</td>
<td>130</td>
</tr>
<tr>
<td>UN0012</td>
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<td>UN0014</td>
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</tr>
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<td>UN0015</td>
<td>130</td>
</tr>
<tr>
<td>UN0042</td>
<td>132</td>
</tr>
<tr>
<td>UN0043</td>
<td>133</td>
</tr>
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<td>UN0044</td>
<td>133</td>
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<td>114(b)</td>
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<td>UN0167</td>
<td>130</td>
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<td>UN0377</td>
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<td>UN0378</td>
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<td>UN0379</td>
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</tbody>
</table>
UN 0012 requires no inner packagings. No “Particular Packing Requirements” apply.
### PACKING INSTRUCTIONS

**Pipeline and Hazardous Materials Safety Admin., DOT**  
§ 173.62

#### TABLE OF PACKING METHODS—Continued

<table>
<thead>
<tr>
<th>Packing instruction</th>
<th>Inner packagings</th>
<th>Intermediate packagings</th>
<th>Outer packagings</th>
</tr>
</thead>
</table>
| 114(b) This packing instruction applies to dry solids.  
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:  
1. For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead free.  
2. For UN 0160 and UN 0161, when metal drums (1A2 or 1B2) are used as the outer packaging, metal packagings must be so constructed that the risk of explosion, by reason of increased internal pressure from internal or external causes is prevented.  
3. For UN 0160 and UN 0161, inner packagings are not required if drums are used as the outer packaging. | Bags .......... paper, kraft plastics textile, sift-proof woven plastics, sift-proof | Not necessary .......... | Boxes.  
natural wood, ordinary (4C1).  
natural wood, sift proof walls (4C2) plywood (4D).  
reconstituted wood (4F).  
fibreboard (4G).  
Drums.  
steel, removable head (1A2).  
aluminium, removable head (1B2) plywood (1D).  
fibre (1G).  
plastics, removable head (1H2) |

Various inners & outers are allowed. UN 0161 may skip inner packaging when in a drum.
FLAMMABLE SOLID POWDER

49 CFR 173.171:

In the US, 1.3C smokeless powder may be re-classed to 4.1 when:
* Burn tested to 4.1 criteria
* 8 lb net max inner
* 100 lb net max shipment
* 16 lb net max mixed brands

Used for economic shipment of smaller
### PACKING INSTRUCTIONS

#### § 173.62

**TABLE OF PACKING METHODS—Continued**

<table>
<thead>
<tr>
<th>Packing instruction</th>
<th>Inner packagings</th>
<th>Intermediate packagings</th>
<th>Outer packagings</th>
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</thead>
<tbody>
<tr>
<td>133</td>
<td>Receptacles</td>
<td>Receptacles</td>
<td>Boxes.</td>
</tr>
<tr>
<td></td>
<td>Intermediate pack-</td>
<td>fibreboard</td>
<td>steel (4A).</td>
</tr>
<tr>
<td></td>
<td>agings are only re-</td>
<td>metal</td>
<td>aluminium (4B).</td>
</tr>
<tr>
<td></td>
<td>quired when trays</td>
<td>plastics</td>
<td>wood (4C1).</td>
</tr>
<tr>
<td></td>
<td>are used as inner</td>
<td>wood</td>
<td>wood, natural, ordinary (4C1).</td>
</tr>
<tr>
<td></td>
<td>packagings.</td>
<td></td>
<td>wood, natural, sifting proof walls (4C2).</td>
</tr>
<tr>
<td></td>
<td>fibreboard</td>
<td></td>
<td>plywood (4D).</td>
</tr>
<tr>
<td></td>
<td>metal</td>
<td></td>
<td>reconstituted wood (4F).</td>
</tr>
<tr>
<td></td>
<td>plastics</td>
<td></td>
<td>fibreboard (4G).</td>
</tr>
<tr>
<td></td>
<td>wood</td>
<td></td>
<td>plastics, solid (4H2).</td>
</tr>
<tr>
<td></td>
<td>Trays, fitted with dividing.</td>
<td>partitions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>fibreboard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>plastics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>wood</td>
<td></td>
</tr>
</tbody>
</table>

**PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:**

1. For UN 0043, 0212, 0225, 0268 and 0306 trays are not authorized as inner packagings.

---

**UN 0044 & UN 0378 use PI 133**

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**PACKING INSTRUCTIONS**

**Pipeline and Hazardous Materials Safety Admin., DOT**

§ 173.62

**TABLE OF PACKING METHODS—Continued**

<table>
<thead>
<tr>
<th>Packing instruction</th>
<th>Inner packagings</th>
<th>Intermediate packagings</th>
<th>Outer packagings</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>Bags</td>
<td>Not necessary</td>
<td>Boxes. steel (4A).</td>
</tr>
<tr>
<td></td>
<td>plastics</td>
<td></td>
<td>aluminium (4B)</td>
</tr>
<tr>
<td></td>
<td>textile</td>
<td></td>
<td>wood, natural, ordinary (4C1).</td>
</tr>
<tr>
<td></td>
<td>Boxes.</td>
<td></td>
<td>wood, natural, sift proof walls (4C2).</td>
</tr>
<tr>
<td></td>
<td>fibreboard</td>
<td></td>
<td>plywood (4D). reconstituted wood (4F).</td>
</tr>
<tr>
<td></td>
<td>plastics</td>
<td></td>
<td>fibreboard (4G).</td>
</tr>
<tr>
<td></td>
<td>wood</td>
<td></td>
<td>plastics, solid (4H2).</td>
</tr>
<tr>
<td></td>
<td>Dividing partitions in the.</td>
<td></td>
<td>Drums. steel, removable head (1A2).</td>
</tr>
<tr>
<td></td>
<td>outer packagings</td>
<td></td>
<td>aluminium, removable head (1B2).</td>
</tr>
</tbody>
</table>

**UN 0055 uses PI 136**

© 2013 Sporting Arms and Ammunition Manufacturers’ Institute, Inc. (SAAMI) and DG Advisor, LLC
<table>
<thead>
<tr>
<th>Symbols</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions</th>
<th>(8) Packaging</th>
<th>(9) Quantity limitations</th>
<th>(10) Vessel storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
<tr>
<td>Cartridges for weapons, blank or Cartridges, small arms, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartridges for weapons, inert projectile or Cartridges, small arms</td>
<td>1.4S</td>
<td>UN0012</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartridges, power device (used to project fastening devices)</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
<td>UN0055</td>
<td>II</td>
<td>1.4S</td>
<td>50</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4S</td>
<td>UN0044</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>II</td>
<td>1.4B</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D Smokeless powder for small arms</td>
<td>4.1</td>
<td>NA3178</td>
<td>II</td>
<td>4.1</td>
<td>16</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# APPROVED PACKAGING

<table>
<thead>
<tr>
<th>U.N. PROPER SHIPPING NAME AND NUMBER:</th>
<th>Primers, cap type, UN0044</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.N. CLASSIFICATION CODE:</td>
<td>1.4S</td>
</tr>
<tr>
<td>REFERENCE NUMBER:</td>
<td>EX2007020114</td>
</tr>
<tr>
<td>PRODUCT DESIGNATION/PART NUMBER:</td>
<td>Wolf B</td>
</tr>
</tbody>
</table>

## NOTES:
This classification is only valid when the primers are packaged as follows: Inner Packaging - Trays, plastic with recessed cavities, each containing not more than one hundred (100) primers uniformly segregated apart in up to a 10x10 array covered with slip-over cardboard or paperboard sleeve enclosures. Intermediate Packaging - Box, cardboard or paperboard, each containing not more than ten (10) inner packagings in up to five (5) layers. Outer Packaging - UN 4G fiberboard box, each containing not more than five (5) intermediate packagings.

- **Pick A Packaging, But Then You’re Locked In**
- **N/A For Self-Classified Ammo**
UN MANUAL OF TESTS & CRITERIA

- Presents the UN classification schemes and test methods for competent authorities
- Will not unerringly lead to proper classification
- Assumes competence of the testing authority and leaves them responsibility for classification.
- The competent authority has discretion to add, delete or vary tests for a reliable and realistic hazard assessment.
Test Series 4: "Is the article, packaged article or packaged substance too dangerous for transport?"

- Type 4 (a): a test of thermal stability for articles; and
- Type 4 (b): a test to determine the ignition hazard from dropping.

FAILURE = FORBIDDEN
A Test On A Single Package To Determine If There Is Mass Explosion Of The Contents.

Mass explosion indicates Division 1.1:
(a) A crater at the test site;
(b) Damage to the witness plate beneath the package;
(c) Measurement of a blast; and
(d) Disruption and scattering of the confining material.
TEST 6(a) UN 0044
TEST 6(a) UN 0044
TEST 6(a) UN 0044
# TEST 6(c)

<table>
<thead>
<tr>
<th>Mass Explosion</th>
<th>Witness Screen</th>
<th>Metal Projectile</th>
<th>Flame Ball or Jet</th>
<th>Fiery projection</th>
<th>Burn Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perforation</td>
<td>Dent &gt;4mm</td>
<td>&gt;20J</td>
<td>Beyond witness (4m)</td>
<td>1m &gt; x &gt;= 4m</td>
</tr>
<tr>
<td>1.1</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 (other than S)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4S</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Otherwise 1.4S if it would not significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity.
APPROVED PACKAGING

U.N. PROPER SHIPPING NAME AND NUMBER:
Primers, cap type, UN0044

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER
EX2007020114

PRODUCT
Wolf B

NOTES:
This classification is only valid when the primers are packaged as follows: Inner Packaging - Trays, plastic with recessed cavities, each containing not more than one hundred (100) primers uniformly segregated apart in up to a 10x10 array covered with slip-over cardboard or paperboard sleeve enclosures. Intermediate Packaging - Box, cardboard or paperboard, each containing not more than ten (10) inner packagings in up to five (5) layers. Outer Packaging - UN 4G fiberboard box, each containing not more than five (5) intermediate packagings.

• Pick A Packaging, But Then You’re Locked In
• N/A For Self-Classified Ammo
CERTIFICATION TESTING

DROP TEST

X = PG I, II, or III
Y = PG II or III
Z = PG III ONLY

VIBRATION TEST

X = 5.9'
Y = 3.9'
Z = 2.6'

STACK TEST

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MARKINGS
PSN, UN#, ORM-D, 1.4S

- Proper Shipping Name & ID Number / ORM-D (Which Certifies The Package is ORM-D)
- “ORM-D-Air” for Air
- ORM-D Rectangle 0.25” Larger Each Side Than Text (172.316)
- International Vessel: “1.4S” is Required in Lieu of a Label
EX# MARKINGS

- “Explosive Number” (Not “Exemption”)
- File # Of The DOT
- Required Marking On Package
- Alternatively On Shipping Paper
- Or May Be Replaced With Alternative Code If It Appears On DOT Approval
- Not applicable for US cartridges, small arms <= 50 cal / 8 gauge
EX# MARKINGS

U.N. PROPER SHIPPING NAME AND NUMBER:
Primers, cap type, UN0044

U.N. CLASSIFICATION CODE: 1.4S

REFERENCE NUMBER PRODUCT DESIGNATION/PART NUMBER
EX2007020114 Wolf Brand Shot Shell Primers (D/N KV 209)

EX# AND ALTERNATIVE CODE

NOTES:
This classification is only valid when the primers are packaged as follows: Inner Packaging - Trays, plastic with recessed cavities, each containing not more than one hundred (100) primers uniformly segregated apart in up to a 10x10 array covered with slip-over cardboard or paperboard sleeve enclosures. Intermediate Packaging - Box, cardboard or paperboard, each containing not more than ten (10) inner packagings in up to five (5) layers. Outer Packaging - UN 4G fiberboard box, each containing not more than five (5) intermediate packagings.
## LABELING

### 49 CFR 172 Subpart F

- **1.4S** ammo and primers don’t require a label
- **ORM-D** ammo has no label

### 1.4B Label

- Applies

### Sec. 172.101 Hazardous Materials Table

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identification Numbers</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions</th>
<th>Package $173.*** Exceptions (8A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td></td>
</tr>
<tr>
<td>Cartridges for weapons, blank or Cartridges, small arms, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>I</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Cartridges for weapons, inert projectile or Cartridges, small arms</td>
<td>1.4S</td>
<td>UN0012</td>
<td>I</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartridges, power device (used to project fastening devices)</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
<td>UN0055</td>
<td>II</td>
<td>1.4S</td>
<td>50</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Powder, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4S</td>
<td>UN0044</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>I</td>
<td>1.4B</td>
<td>-</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Smokeless powder for small arms</td>
<td>4.1</td>
<td>NA3178</td>
<td>II</td>
<td>4.1</td>
<td>16</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
PLACARDING EXCEPTIONS

- No Placards For 1.4 Below 1,001 Pounds (E.G.1.4B)  
  49 CFR 172.504(c)
- No Placards For 1.4S That Don’t Require A Label  
  49 CFR 172.504(f)
- No Placards For ORM-D  
- No Placards For LQ Identified On Shipping Paper OR Marked On Package
FMCSA defines Hazmat as only placarded hazmat

No requirement for CDL hazmat endorsement for unplacarded loads

CDL required based on truck size – 26,000 pound Gross Vehicle Weight Rating (GVWR)
### HMT Basic Description

#### Sec. 172.101 Hazardous Materials Table

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Hazardous materials description and proper shipping names</th>
<th>Hazard class or division</th>
<th>Identifiers (3) Numbers (4)</th>
<th>PG</th>
<th>Label Codes</th>
<th>Special provisions (8) Packaging (§173.***</th>
<th>(9) Quantity limitations</th>
<th>(10) Vessel stowage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cartridges for weapons, blank or Cartridges, small arms, blank or Cartridges for tools, blank</td>
<td>1.4S</td>
<td>UN0014</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td>62</td>
<td>None</td>
</tr>
<tr>
<td>Cartridges for weapons, inert projectile or Cartridges, small arms</td>
<td>1.4S</td>
<td>UN0012</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>63</td>
<td>62</td>
<td>None</td>
</tr>
<tr>
<td>Cartridges, small arms</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>222</td>
<td>63</td>
<td>None</td>
<td>None</td>
<td>30 kg gross</td>
</tr>
<tr>
<td>Cartridges, power device (used to project fastening devices)</td>
<td>ORM-D</td>
<td>-</td>
<td>None</td>
<td>222</td>
<td>63</td>
<td>None</td>
<td>None</td>
<td>30 kg gross</td>
</tr>
<tr>
<td>Cases, cartridge, empty with primer</td>
<td>1.4S</td>
<td>UN0055</td>
<td>II</td>
<td>1.4S</td>
<td>50</td>
<td>63</td>
<td>62</td>
<td>None</td>
</tr>
<tr>
<td>Powder, smokeless</td>
<td>1.3C</td>
<td>UN0161</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
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<td>Powder, smokeless</td>
<td>1.4C</td>
<td>UN0509</td>
<td>1.4C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
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<tr>
<td>Primers, cap type</td>
<td>1.4S</td>
<td>UN0044</td>
<td>II</td>
<td>None</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
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<td>Primers, cap type</td>
<td>1.4B</td>
<td>UN0378</td>
<td>II</td>
<td>1.4B</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
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<td>Propellant, solid</td>
<td>1.3C</td>
<td>UN0499</td>
<td>II</td>
<td>1.3C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
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<td>Propellant, solid</td>
<td>1.4C</td>
<td>UN0501</td>
<td>1.4C</td>
<td>-</td>
<td>None</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
</tr>
<tr>
<td>Smokeless powder for small arms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>QTY</th>
<th>TYPE</th>
<th>WEIGHT</th>
<th>H. M.</th>
<th>COMMODITY DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Cases</td>
<td>24</td>
<td></td>
<td>UN0044, PRIMERS, CAP TYPE, 1.4S, PG11</td>
</tr>
<tr>
<td>338</td>
<td>Cases</td>
<td>7,732</td>
<td></td>
<td>CARTRIDGES, SMALL ARMS, ORM-D</td>
</tr>
</tbody>
</table>

**Shipper's Cert**

This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.

**Emergency Phone**

FOR HELP IN EMERGENCIES
CALL: CHEMTREC, TOLL FREE DAY OR NIGHT
1-800-424-9300

**NET EXPLOSIVE WT**

1 lbs
The Shipping Description Must Be:
- Entered first, or
- Printed or highlighted in contrasting color, or
- Marked with an X in a Column marked “HM”
<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>WEIGHT (In lbs)</th>
<th>H. M.</th>
<th>COMMODITY DESCRIPTION</th>
<th>LTL ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 CASES</td>
<td>24</td>
<td>X</td>
<td>UN0044, PRIMERS, CAP TYPE, 1.4S, PGII</td>
<td>64300.02</td>
</tr>
<tr>
<td>338 CASES</td>
<td>7,732</td>
<td></td>
<td>CARTRIDGES, SMALL ARMS, ORM-D</td>
<td>64300.02</td>
</tr>
</tbody>
</table>

"Additional Description"

- Special Permit Number DOT-SP XXXX
- "Limited Quantity" If Applicable
- Empty Packagings: "RESIDUE: Last Contained"
- UN 0012, Cartridges, small arms, 1.4S, PG II, LTD QTY, EX#
## PACKAGE QUANTITY & TYPE

### Weight & Unit of Measurement
- For Class 1, use the net explosive mass; for articles, this means the NEQ or the net weight.
- For salvage packagings, estimate total quantity.
- By aircraft: total net mass is required (unless HM table is gross limit).
- Qty & type, e.g. “12 Boxes” or “12 4G Boxes”, not “12 4G”.

### Example Table

<table>
<thead>
<tr>
<th>Handling Unit</th>
<th>Package</th>
<th>QTY</th>
<th>Type</th>
<th>Net Weight (In lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QTY</td>
<td>TYPE</td>
<td>PCS</td>
<td>TYPE</td>
<td>WEIGHT (In lbs)</td>
</tr>
<tr>
<td>3</td>
<td>PLT</td>
<td>338</td>
<td>CASES</td>
<td>7,732</td>
</tr>
</tbody>
</table>

- **Qty & Type**: 3 Pallets @ 60#/each
- **Net Explosive WT**: 1 lbs
LIMITED QUANTITIES

• For air or vessel, the description of a "limited quantity," must include the words "Limited Quantity" or "Ltd Qty" following the basic description.

• LQ exempted from shipping paper for ground shipments

UN 0012, Cartridges, small arms, 1.4S, PG II, Ltd Qty
Or, when not required: Cartridges, small arms
ATTENDANCE REQUIRED

A motor vehicle which contains a Division 1.1, 1.2, or 1.3 (explosive) material must be attended at all times by its driver or a qualified representative of the motor carrier, with some exceptions.

IMPACT: 2 DRIVERS REQUIRED OUTSIDE 10 HOUR SHIFT RADIUS
HIGHWAY ROUTE PLAN

• 1.1, 1.2 And 1.3 Explosives Require A Written Route Plan
• The Route Plan Should Be Kept With The Shipping Paper

ROUTING INSTRUCTIONS

OUTBOUND

From the magazine entrance gate, Turn Left (South) on County Road 100, go 11 miles.
Turn Left (North) on State Highway 66, go 22 miles.
Take the Exit 66 off ramp and take Turn Left (West) on County Road 222, go 3 miles.
Turn Right at the main entrance gate to John A. Doe’s facility.

RETURN

From John A. Doe’s main entrance gate, Turn Left on County Road 22, go 3 miles
Turn South (Right) on to State Highway 66, go 22 miles.
Take Exit 44 off ramp, Turn Right (North) on County Road 100, go 11 miles.
Arrive at the magazine entrance gate on Left.

Prepared by: Mike Fink
Location Manager: Mark American
Date: January 1, 2008
The Federal Motor Carrier Safety Administration Requires A HM Safety Permit To Transport Hazardous Materials

A Shipment Over 55 Pounds Of 1.1, 1.2 Or 1.3; Or Placarded 1.5 Requires A Permit

Every Truck Must Have:
- A Copy Or The Permit #
- Route Plan (1.1 – 1.3 Explosives)
- Phone # Of Employee Who Can Verify The Route Plan

Few Carriers Have This
$5 MILLION INSURANCE

- $750,000 Non-Hazmat Commerce
- $1 Million Hazmat Commerce
- $5 Million 1.3C Commerce

PROHIBITIVE COST
FEW CARRIERS HAVE
1.4C PROPELLANT

BENEFITS

- Use Regular Common Carriers
- Because
  - No Dual Drivers
  - No Route Plan
  - No Haz Mat Safety Permit
  - No Prohibitive Insurance
- No 100# Limit That Applies To Flammable Solid
- Up To 1000 Lbs Without Placard
### ROAD SEGREGATION

<table>
<thead>
<tr>
<th>Class or division</th>
<th>Notes</th>
<th>1.1</th>
<th>1.2</th>
<th>1.3</th>
<th>1.4</th>
<th>1.5</th>
<th>1.6</th>
<th>2.1</th>
<th>2.2</th>
<th>2.3 gas zone A</th>
<th>2.3 gas Zone B</th>
<th>3</th>
<th>4.1</th>
<th>4.2</th>
<th>4.3</th>
<th>5.1</th>
<th>5.2</th>
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**Legend:**
- **BLANK** = ALLOWED ON SAME TRUCK
- **O** = ALLOWED WITH PRECAUTIONS
- **X** = PROHIBITED ON SAME TRUCK

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- **BLANK = ALLOWED ON SAME TRUCK**
- **O = ALLOWED WITH PRECAUTIONS , X = PROHIBITED**
- **2 = C + D = E**
- **4/5 = LIMITATIONS FOR FIREWORKS & BLASTING CAPS**