GLOBAL ADDITION OF CLASS 1 INTO LQ
AMMUNITION COMPONENTS

- **Shot**
- **Slug**
- **Shell Case**
- **Wad with Shot Cup**
- **Wad**
- **Gunpowder**
- **Primer**

**Rimfire**
- **Bullet**
- **Cartridge Case**
- **Gunpowder**
- **Rim Containing Primer**
- **Primer**

**Centerfire**
SMALL ARMS PRIMERS

© 2013 Sporting Arms and Ammunition Manufacturers’ Institute, Inc. (SAAMI) and DG Advisor, LLC
<table>
<thead>
<tr>
<th>Sym-&lt;br&gt;bols</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.***&lt;br&gt;Exception&lt;br&gt;(8A)</th>
<th>Non-&lt;br&gt;bulk (8B)</th>
<th>Bulk (8C)</th>
<th>Passenger aircraft/rail (9A)</th>
<th>Cargo aircraft only (9B)</th>
<th>Location&lt;br&gt;(10A)</th>
<th>Other (10B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</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</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
<td>100 kg</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>(1)</td>
<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>
<td>25 kg</td>
<td>100 kg</td>
<td>5</td>
<td>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</td>
<td>None</td>
<td>None</td>
<td>30 kg gross</td>
<td>30 kg gross</td>
<td>A</td>
<td>-</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</td>
<td>None</td>
<td>None</td>
<td>30 kg gross</td>
<td>30 kg gross</td>
<td>A</td>
<td>-</td>
<td></td>
</tr>
<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</td>
<td>62</td>
<td>None</td>
<td>25 kg</td>
<td>100 kg</td>
<td>5</td>
<td>-</td>
</tr>
<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</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
<td>Forbidden</td>
<td>-</td>
<td>26E</td>
</tr>
<tr>
<td></td>
<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>
<td>100 kg</td>
<td>05</td>
<td>-</td>
</tr>
<tr>
<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</td>
<td>62</td>
<td>None</td>
<td>Forbidden</td>
<td>75 kg</td>
<td>07</td>
<td>-</td>
</tr>
<tr>
<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</td>
<td>171</td>
<td>None</td>
<td>Forbidden</td>
<td>7.3 kg</td>
<td>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.
<table>
<thead>
<tr>
<th>Section</th>
<th>Subpart</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>171.16</td>
<td>Spill Reporting</td>
<td></td>
</tr>
<tr>
<td>172.101</td>
<td>Subpart B, HM Table &amp; Special Provisions</td>
<td></td>
</tr>
<tr>
<td>172.200</td>
<td>Subpart C, Shipping Papers (except haz sub, haz waste, marine poll., air and vessel)</td>
<td></td>
</tr>
<tr>
<td>172.300</td>
<td>Subpart D, Marking</td>
<td></td>
</tr>
<tr>
<td>172.400</td>
<td>Subpart E, Labeling</td>
<td></td>
</tr>
<tr>
<td>172.500</td>
<td>Subpart F, Placarding</td>
<td></td>
</tr>
<tr>
<td>172.600</td>
<td>Subpart G, Emergency Response Info</td>
<td></td>
</tr>
<tr>
<td>172.700</td>
<td>Subpart H, Training</td>
<td></td>
</tr>
<tr>
<td>172.800</td>
<td>Subpart I, Security Plans</td>
<td></td>
</tr>
<tr>
<td>173.63</td>
<td>Spec Packaging Exception</td>
<td></td>
</tr>
<tr>
<td>175.75</td>
<td>Aircraft Accessibility</td>
<td></td>
</tr>
</tbody>
</table>
ORM-D Eliminates Ground Fees

The ORM-D System Eliminates Shipping Paper Requirements.

No Shipping Paper = No Hazmat Fee

$27.5 0
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
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.
<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>
</tr>
<tr>
<td>ADR</td>
<td>January-13</td>
</tr>
<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></td>
<td>Not permitted</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Aerosols and gas cartridges containing toxic substances: 120 ml/30 kg Other aerosols and gas cartridges: 1 L/30 kg</td>
</tr>
<tr>
<td>2.1</td>
<td></td>
<td>Not permitted</td>
</tr>
<tr>
<td>2.2</td>
<td></td>
<td>Without subsidiary risk: 120 ml/30 kg With subsidiary risk: Not permitted</td>
</tr>
<tr>
<td>2.3</td>
<td></td>
<td>Not permitted</td>
</tr>
<tr>
<td>3</td>
<td>I</td>
<td>Not permitted</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>1 L/30 kg</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>5 L/30 kg</td>
</tr>
<tr>
<td>4.1</td>
<td>I</td>
<td>Not permitted</td>
</tr>
</tbody>
</table>

Class 1 was not permitted.
United Nations  

Secretariat  

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)  

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
<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>3.1.2</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0.1.3</td>
<td>3.3</td>
<td>3.4</td>
<td>3.5</td>
<td>4.1.4</td>
</tr>
<tr>
<td>0014</td>
<td>CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGES FOR TOOLS, BLANK†</td>
<td>364</td>
<td>5 kg</td>
<td>E0</td>
<td>P130</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0055</td>
<td>CASES, CARTRIDGE, EMPTY, WITH PRIMER†</td>
<td>364</td>
<td>5 kg</td>
<td>E0</td>
<td>P136</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

“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
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

Sec. 172.101 Hazardous Materials Table

- 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
§173.63

(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 less than
§ 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.
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;
... (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
OVERPACKS

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.
OCEAN FREIGHT

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

2013 LOGISTICS SEMINAR
- Ammunition & Components –

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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 OVERRIDE:
- 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 ADR 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

5.2.2.2.4 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 (Amdt. 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 on each package. The UN number and the letters “UN” shall be of at least 15 mm in height, except for cylinders containing 30 L or 30 kg capacity or less and except for cylinders containing 200 L or 1000 kg or more, which shall be of at least 6 mm in height and except 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 3285.
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

| 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 3 4 | 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 2 4 2 2 | X | |
| Flammable gases 2.1 | 4 4 2 X X | | | |
| Non-toxic, non-flammable gases 2.2 | 2 2 1 X X | | | |
| Toxic gases 2.3 | 2 2 1 X X | | | |
| Flammable liquids 3 | 4 4 2 2 1 2 1 | X X | | |
| Flammable solids (including self-reactive substances and solid desensitized explosives) 4.1 | 4 3 2 1 X X | | | |
| Substances liable to spontaneous combustion 4.2 | 4 3 2 2 1 2 | | | |
| Substances, which on contact with water, emit flammable gases 4.3 | 4 4 2 X X X | | | |
| Oxidizing substances (agents) 5.1 | 4 4 2 2 X | | | |
| Organic peroxides 5.2 | 4 4 2 2 1 2 | | | |
| Toxic substances 6.1 | 2 2 X | | | | | | |
| Infectious substances 6.2 | 4 4 4 4 2 2 | | | |
| Radioactive material 7 | 2 2 2 2 1 1 | | | |
| Corrosive substances 8 | 4 2 2 1 X X | | | |
| Miscellaneous dangerous substances and articles 9 | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X | X X X |

*Same Results For Class 1 As Domestic Vessel*
### LQ CHANGES: CHAP 3.2

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

<table>
<thead>
<tr>
<th>UN No.</th>
<th>Proper Shipping Name (PSN)</th>
<th>Class or division</th>
<th>Subsidiary risk(s)</th>
<th>Packing group</th>
<th>Special provisions</th>
<th>Limited and excepted quantity provisions</th>
<th>Packing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012</td>
<td>CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS</td>
<td>1.4S</td>
<td>-</td>
<td>-</td>
<td>364</td>
<td>5 kg</td>
<td>-</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>-</td>
<td>-</td>
<td>364</td>
<td>5 kg</td>
<td>-</td>
</tr>
<tr>
<td>0055</td>
<td>CASES, CARTRIDGE, EMPTY, WITH PRIMER</td>
<td>1.4S</td>
<td>-</td>
<td>-</td>
<td>364</td>
<td>5 kg</td>
<td>-</td>
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<tr>
<td>0044</td>
<td>PRIMERS, CAP TYPE</td>
<td>1.4S</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>E0</td>
</tr>
</tbody>
</table>
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.
LQ CHANGES: CHAP 3.4

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.

<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>

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
- 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, 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.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>1.1, 1.2, 1.5</th>
<th>1.3, 1.6</th>
<th>1.4</th>
<th>2.1</th>
<th>2.2</th>
<th>2.3</th>
<th>3.0</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>7.0</th>
<th>8.0</th>
<th>9.0</th>
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<tr>
<td>Explosives</td>
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<td>*</td>
<td>4</td>
<td>2</td>
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<td>2</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>Explosives</td>
<td>1.3, 1.6</td>
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<td>*</td>
<td>*</td>
<td>4</td>
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<td>1.4</td>
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<td>2</td>
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<td>2</td>
<td>2</td>
<td>X</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

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
2013 LOGISTICS SEMINAR
- Ammunition & Components -

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

OCEAN FREIGHT
DELAY & DENIAL
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
## WEIGHT RESTRICTIONS

| Class | OSAKA | | KOBE | | NAGOYA |
|-------|-------|--|------|--|------|------|--|------|--|------|
|       | Working | Entry | Working | Entry | Working | Entry | Working | Entry |
|       | Day     | Night | Day   | Night | Day   | Night | Day   | Night |
| 1     | -       | -     | -     | -     | -     | -     | -     | -     |
| 1.1   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
| 1.2   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
| 1.3   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
| 1.4   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
| 1.5   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
| 1.6   | 20      | -     | 20    | -     | 20    | -     | 20    | -     |
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

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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.
I SEE ORANGE!

- Explosives Vary Widely
- People See Orange And Don’t Differentiate
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
BONFIRE TEST 6(c)

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.

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### 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>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>

### 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>
</tr>
</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>
</tr>
</tbody>
</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>
<thead>
<tr>
<th>CLASS</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>
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<td>Explosives 1.1, 1.2, 1.5</td>
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<td>Substances liable to spontaneous combustion 4.2</td>
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<td>3</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Substances, which on contact with water, emit flammable gases 4.3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>X</td>
<td>X</td>
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<td>4</td>
<td>2</td>
<td>2</td>
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<td>Organic peroxides 5.2</td>
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<td>Radioactive material 7</td>
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<td>Miscellaneous dangerous substances and articles 9</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**

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### STOWAGE CATEGORY A

<table>
<thead>
<tr>
<th>Stowage category</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></td>
<td>Passenger ships</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.

- **ON DECK OR UNDER DECK**

- **ON DECK OR UNDER DECK**

- **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**
“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

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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
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
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