

## § 173.61

transport. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling, storage or launching devices in such a way that they will not become loose during normal conditions of transport and are in accordance with DOD-approved procedures.

[Amdt. 173-260, 62 FR 24719, May 6, 1997, as amended at 65 FR 50461, Aug. 18, 2000]

### § 173.61 Mixed packaging requirements.

(a) An explosive may not be packed in the same outside packaging with any other material that could, under normal conditions of transportation, adversely affect the explosive or its packaging unless packaged by DOD or DOE in accordance with § 173.7(a).

(b) Hardware necessary for assembly of explosive articles at the point-of-use may be packed in the same outside packaging with the explosive articles. The hardware must be securely packed in a separate inside packaging. Sufficient cushioning materials must be used to ensure that all inside packagings are securely packed in the outside packaging.

(c) The following explosives may not be packed together with other Class 1 explosives: UN 0029, UN 0030, UN 0073, UN 0106, UN 0107, UN 0255, UN 0257, UN 0267, UN 0350, UN 0360, UN 0361, UN 0364, UN 0365, UN 0366, UN 0367, UN 0408, UN 0409, UN 0410, UN 0455, and UN 0456. These explosives may be mix-packed with each other in accordance with the compatibility requirements prescribed in paragraph (e).

(d) Division 1.1 and 1.2 explosives may not be packed with the following explosives: UN 0333, UN 0334, UN 0335, UN 0336, and UN 0337.

(e) Except as prescribed in paragraphs (c) and (d) of this section, different explosives may be packed in one outside packaging in accordance with the following compatibility requirements:

(1) Explosives of the same compatibility group and same division number may be packed together.

(2) Explosives of the same compatibility group or authorized combination of compatibility group but different division number may be packed together, provided that the whole

## 49 CFR Ch. I (10-1-06 Edition)

package is treated as though its entire contents were comprised of the lower division number. For example, a mixed package of Division 1.2 explosives and Division 1.4 explosives, compatibility group D, must be treated as 1.2D explosives. However, when 1.5D explosives are packed together with 1.2D explosives, the whole package must be treated as 1.1D explosives.

(3) Explosives of compatibility group S may be packaged together with explosives of any other compatibility group except A or L, and the combined package may be treated as belonging to any of the packaged compatibility groups except S.

(4) Explosives of compatibility group L shall only be packed with an identical explosive.

(5) Explosives articles of compatibility groups C, D, or E may be packed together and the entire package shall be treated as belonging to compatibility group E.

(6) Explosives articles of compatibility groups C, D, E, or N may be packed together and the entire package shall be treated as belonging to compatibility group D.

(7) Explosives substances of compatibility groups C and D may be packaged together and the entire package shall be treated as belonging to compatibility group D.

(8) Explosive articles of compatibility group G, except for fireworks and articles requiring special packaging, may be packaged together with explosive articles of compatibility groups C, D or E and the combined package shall be treated as belonging to compatibility group E.

[Amdt. 173-224, 55 FR 52617 Dec. 21, 1990, as amended at 56 FR 66267, Dec. 20, 1991; 65 FR 50461, Aug. 18, 2000; 66 FR 33429, June 21, 2001; 66 FR 45381, Aug. 28, 2001; 69 FR 54046, Sept. 7, 2004]

### § 173.62 Specific packaging requirements for explosives.

(a) Except as provided in § 173.7 of this subchapter, when the § 172.101 Table specifies that an explosive must be packaged in accordance with this section, only packagings which conform to the provisions of paragraphs (b) and (c) of this section or § 173.7(e) of

this subchapter and the applicable requirements in §§ 173.60 and 173.61 may be used unless otherwise approved by the Associate Administrator.

(b) *Explosives Table.* The Explosives Table specifies the Packing Instructions assigned to each explosive. Explosives are identified in the first column in numerical sequence by their identification number (ID #), which is listed in column 4 of the § 172.101 table, of this subchapter. The second column of the Explosives Table specifies the Packing Instruction (PI) which must be used for packaging the explosive. The Explosives Packing Method Table in paragraph (c) of this section defines the methods of packaging. The Packing Instructions are identified using a 3 digit designation. The Packing Instruction prefixed by the letters "US" is particular to the United States and not found in applicable international regulations.

EXPLOSIVES TABLE

ID#	PI
UN0004	112
UN0005	130
UN0006	130
UN0007	130
UN0009	130
UN0010	130
UN0012	130
UN0014	130
UN0015	130
UN0016	130
UN0018	130
UN0019	130
UN0020	101
UN0021	101
UN0027	113
UN0028	113
UN0029	131
UN0030	131
UN0033	130
UN0034	130
UN0035	130
UN0037	130
UN0038	130
UN0039	130
UN0042	132
UN0043	133
UN0044	133
UN0048	130
UN0049	135
UN0050	135
UN0054	135
UN0055	136
UN0056	130
UN0059	137
UN0060	132
UN0065	139
UN0066	140
UN0070	134
UN0072	112(a)
UN0073	133

EXPLOSIVES TABLE—Continued

ID#	PI
UN0074	110(a) or 110(b)
UN0075	115
UN0076	112
UN0077	114(a) or 114(b)
UN0078	112
UN0079	112(b) or 112(c)
UN0081	116
UN0082	116 or 117
UN0083	116
UN0084	116
UN0092	135
UN0093	135
UN0094	113
UN0099	134
UN0101	140
UN0102	139
UN0103	140
UN0104	139
UN0105	140
UN0106	141
UN0107	141
UN0110	141
UN0113	110(a) or 110(b)
UN0114	110(a) or 110(b)
UN0118	112
UN0121	142
UN0124	US1
UN0129	110(a) or 110(b)
UN0130	110(a) or 110(b)
UN0131	142
UN0132	114(b)
UN0133	112(a)
UN0135	110(a) or 110(b)
UN0136	130
UN0137	130
UN0138	130
UN0143	115
UN0144	115
UN0146	112
UN0147	112(b)
UN0150	112(a) or 112(b)
UN0151	112
UN0153	112(b) or 112(c)
UN0154	112
UN0155	112(b) or 112(c)
UN0159	111
UN0160	114(b)
UN0161	114(b)
UN0167	130
UN0168	130
UN0169	130
UN0171	130
UN0173	134
UN0174	134
UN0180	130
UN0181	130
UN0182	130
UN0183	130
UN0186	130
UN0190	101
UN0191	135
UN0192	135
UN0193	135
UN0194	135
UN0195	135
UN0196	135
UN0197	135
UN0204	134
UN0207	112(b) or 112(c)
UN0208	112(b) or 112(c)
UN0209	112
UN0212	133

§ 173.62

49 CFR Ch. I (10–1–06 Edition)

EXPLOSIVES TABLE—Continued

EXPLOSIVES TABLE—Continued

ID#	PI
UN0213	112(b) or 112(c)
UN0214	112
UN0215	112
UN0216	112(b) or 112(c)
UN0217	112(b) or 112(c)
UN0218	112(b) or 112(c)
UN0219	112
UN0220	112
UN0221	130
UN0222	112(b) or 112(c)
UN0224	110(a) or 110(b)
UN0225	133
UN0226	112(a)
UN0234	114(a) or 114(b)
UN0235	114(a) or 114(b)
UN0236	114(a) or 114(b)
UN0237	138
UN0238	130
UN0240	130
UN0241	116 or 117
UN0242	130
UN0243	130
UN0244	130
UN0245	130
UN0246	130
UN0247	101
UN0248	144
UN0249	144
UN0250	101
UN0254	130
UN0255	131
UN0257	141
UN0266	112
UN0267	131
UN0268	133
UN0271	143
UN0272	143
UN0275	134
UN0276	134
UN0277	134
UN0278	134
UN0279	130
UN0280	130
UN0281	130
UN0282	112
UN0283	132
UN0284	141
UN0285	141
UN0286	130
UN0287	130
UN0288	138
UN0289	139
UN0290	139
UN0291	130
UN0292	141
UN0293	141
UN0294	130
UN0295	130
UN0296	134
UN0297	130
UN0299	130
UN0300	130
UN0301	130
UN0303	130
UN0305	113
UN0306	133
UN0312	135
UN0313	135
UN0314	142
UN0315	142
UN0316	141
UN0317	141

ID#	PI
UN0318	141
UN0319	133
UN0320	133
UN0321	130
UN0322	101
UN0323	134
UN0324	130
UN0325	142
UN0326	130
UN0327	130
UN0328	130
UN0329	130
UN0330	130
UN0331	116 or 117
UN0332	116 or 117
UN0333	135
UN0334	135
UN0335	135
UN0336	135
UN0337	135
UN0338	130
UN0339	130
UN0340	112(a) or 112(b)
UN0341	112(b)
UN0342	114(a)
UN0343	111
UN0344	130
UN0345	130
UN0346	130
UN0347	130
UN0348	130
UN0349	101
UN0350	101
UN0351	101
UN0352	101
UN0353	101
UN0354	101
UN0355	101
UN0356	101
UN0357	101
UN0358	101
UN0359	101
UN0360	131
UN0361	131
UN0362	130
UN0363	130
UN0364	133
UN0365	133
UN0366	133
UN0367	141
UN0368	141
UN0369	130
UN0370	130
UN0371	130
UN0372	141
UN0373	135
UN0374	134
UN0375	134
UN0376	133
UN0377	133
UN0378	133
UN0379	136
UN0380	101
UN0381	134
UN0382	101
UN0383	101
UN0384	101
UN0385	112(b) or 112(c)
UN0386	112(b) or 112(c)
UN0387	112(b) or 112(c)
UN0388	112(b) or 112(c)
UN0389	112(b) or 112(c)

EXPLOSIVES TABLE—Continued

ID#	PI
UN0390	112(b) or 112(c)
UN0391	112(a)
UN0392	112(b) or 112(c)
UN0393	112(b)
UN0394	112(a)
UN0395	101
UN0396	101
UN0397	101
UN0398	101
UN0399	101
UN0400	101
UN0401	112
UN0402	112(b) or 112(c)
UN0403	135
UN0404	135
UN0405	135
UN0406	114(b)
UN0407	114(b)
UN0408	141
UN0409	141
UN0410	141
UN0411	112(b) or 112(c)
UN0412	130
UN0413	130
UN0414	130
UN0415	143
UN0417	130
UN0418	135
UN0419	135
UN0420	135
UN0421	135
UN0424	130
UN0425	130
UN0426	130
UN0427	130
UN0428	135
UN0429	135
UN0430	135
UN0431	135
UN0432	135
UN0433	111
UN0434	130
UN0435	130
UN0436	130
UN0437	130
UN0438	130
UN0439	137
UN0440	137
UN0441	137
UN0442	137
UN0443	137
UN0444	137
UN0445	137
UN0446	136
UN0447	136
UN0448	114(b)
UN0449	101
UN0450	101
UN0451	130
UN0452	141
UN0453	130
UN0454	142
UN0455	131
UN0456	131
UN0457	130
UN0458	130
UN0459	130
UN0460	130
UN0461	101
UN0462	101
UN0463	101
UN0464	101

EXPLOSIVES TABLE—Continued

ID#	PI
UN0465	101
UN0466	101
UN0467	101
UN0468	101
UN0469	101
UN0470	101
UN0471	101
UN0472	101
UN0473	101
UN0474	101
UN0475	101
UN0476	101
UN0477	101
UN0478	101
UN0479	101
UN0480	101
UN0481	101
UN0482	101
UN0483	112(b) or 112(c)
UN0484	112(b) or 112(c)
UN0486	101
UN0487	135
UN0488	130
UN0489	112(b) or 112(c)
UN0490	112(b) or 112(c)
UN0491	143
UN0492	135
UN0493	135
UN0494	US1
UN0495	115
UN0496	112(b) or 112(c)
UN0497	115
UN0498	114(b)
UN0499	114(b)
UN0500	131
UN0502	130
UN0503	135
UN0504	112(c)
NA0124	US1
NA0276	134
NA0323	134
NA0331	116 or 117
NA0337	135
NA0349	133
NA0494	US1

(c) Explosives must be packaged in accordance with the following table:

(1) The first column lists, in alphanumeric sequence, the packing methods prescribed for explosives in the Explosives Table of paragraph (b) of this section.

(2) The second column specifies the inner packagings that are required. If inner packagings are not required, a notation of "Not necessary" appears in the column. The term "Not necessary" means that a suitable inner packaging may be used but is not required.

(3) The third column specifies the intermediate packagings that are required. If intermediate packagings are not required, a notation of "Not necessary" appears in the column. The term "Not necessary" means that a

**§ 173.62**

**49 CFR Ch. I (10-1-06 Edition)**

suitable intermediate packaging may be used but is not required.

(4) The fourth column specifies the outer packagings which are required. If inner packagings and/or intermediate packagings are specified in the second and third columns, then the packaging specified in the fourth column must be used as the outer packaging of a com-

bination packaging; otherwise it may be used as a single packaging.

(5) Packing Instruction 101 may be used for any explosive substance or article if an equivalent level of safety is shown to be maintained subject to the approval of the Associate Administrator.

TABLE OF PACKING METHODS

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
101 .....	This Packing Instruction may be used as an alternative to a specifically assigned packing method with the approval of the Associate Administrator prior to transportation. When this packing instruction is used, the following must be marked on the shipping documents: "Packaging approved by the competent authority of the United States of America (USA)".		
PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. Samples of new or existing explosive substances or articles may be transported as directed by the Associate Administrator for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are wetted or desensitized must be limited to 25 kg. Explosive samples which are not wetted or desensitized must be limited to 10 kg in small packages as specified by the Associate Administrator for Hazardous Materials Safety			
110(a) ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. The Intermediate packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning 2. Outer packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, except when 0224 is being carried dry	Bags ..... plastics ..... textile, plastic coated or lined. rubber ..... textile, rubberized .. textile .....	Bags ..... plastics ..... textile, plastic coated or lined. rubber ..... textile, rubberized .. Receptacles ..... plastics ..... metal .....	Drums. steel, removable head (1A2). plastics, removable head (1H2)
110(b) ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS For UN 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions must be satisfied: a. inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance); b. each inner packaging must be separated from other inner packagings by dividing partitions; and c. the outer packaging must not be partitioned with more than 25 compartments	Bags ..... rubber, conductive plastics, conductive Receptacles ..... metal ..... wood ..... rubber, conductive plastics, conductive	Dividing partitions ..... metal ..... wood ..... plastics ..... fibreboard .....	Boxes. natural wood, sift-proof wall (4C2). plywood (4D). reconstituted wood (4F).
111 ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0159, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.	Bags ..... paper, waterproofed plastics ..... textile, rubberized .. Sheets ..... plastics ..... textile, rubberized ..	Not necessary .....	Boxes. steel (4A). aluminium (4B). natural wood, ordinary (4C1). natural wood, sift proof (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, expanded (4H1). plastics, solid (4H2). Drums steel, removable head (1A2). aluminum, removable head (1B2). plywood (1D). fibreboard (1G). plastics, removable head (1H2).
112(a) This packing instruction applies to wetted solids.	Bags .....	Bags .....	Boxes.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead free</li> <li>Intermediate packagings are not required if leakproof drums are used as the outer packaging</li> <li>For UN 0072 and UN 0226, intermediate packagings are not required</li> </ol>	<p>paper, multiwall, water resistant.</p> <p>plastics .....</p> <p>textile .....</p> <p>textile, rubberized ..</p> <p>woven plastics .....</p> <p>Receptacles .....</p> <p>metal .....</p> <p>plastics .....</p>	<p>plastics .....</p> <p>textile, plastic coated or lined.</p> <p>Receptacles .....</p> <p>metal .....</p> <p>plastics .....</p>	<p>steel (4A).</p> <p>aluminium (4B).</p> <p>natural wood, ordinary (4C1).</p> <p>natural wood, sift proof (4C2).</p> <p>plywood (4D).</p> <p>reconstituted wood (4F).</p> <p>fibreboard (4G).</p> <p>plastics, expanded (4H1).</p> <p>plastics, solid (4H2).</p> <p>Drums</p> <p>steel, removable head (1A2).</p> <p>aluminium, removable head (1B2).</p> <p>Plywood (1D).</p> <p>fibre (1G).</p> <p>plastics, removable head (1H2).</p>
<p>112(b) This packing instruction applies to dry solids other than powders.</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:.</p> <ol style="list-style-type: none"> <li>For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free.</li> <li>For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg..</li> <li>For UN 0222, inner packagings are not required.</li> </ol>	<p>Bags .....</p> <p>paper, Kraft .....</p> <p>paper, multiwall, water resistant.</p> <p>plastics .....</p> <p>textile .....</p> <p>textile, rubberized plastics.</p> <p>woven plastics .....</p>	<p>Bags (for UN 0150 only).</p> <p>plastics .....</p> <p>textile, plastic coated or lined.</p>	<p>Bags.</p> <p>woven plastics sift-proof (5H2/3).</p> <p>plastics, film (5H4).</p> <p>textile, sift-proof (5L2).</p> <p>textile, water resistant (5L3).</p> <p>paper, multiwall, water resistant (5M2).</p> <p>Boxes</p> <p>steel (4A).</p> <p>aluminium (4B).</p> <p>natural wood, ordinary (4C1).</p> <p>natural wood, sift proof (4C2).</p> <p>plywood (4D)</p> <p>reconstituted wood (4F).</p> <p>fibreboard (4G).</p> <p>plastics, expanded (4H1).</p> <p>plastics, solid (4H2).</p> <p>Drums</p> <p>steel, removable head (1A2).</p> <p>aluminium, removable head (1B2).</p> <p>Plywood (1D).</p> <p>fibre (1G).</p> <p>plastics, removable head (1H2).</p>
<p>112(c) This packing instruction applies to solid dry powders.</p>	<p>Bags .....</p>	<p>Bags .....</p>	<p>Boxes.</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For UN 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free</li> <li>For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state. Bags must not exceed a maximum net mass of 30 kg.</li> <li>Inner packagings are not required if drums are used as the outer packaging.</li> <li>At least one of the packagings must be sift-proof</li> </ol>	<p>paper, multiwall, water resistant.                      plastics .....                      woven plastics .....                      Receptacles .....                      fibreboard .....                      metal .....                      plastics .....                      wood .....</p>	<p>paper, multiwall, water resistant with inner lining.                      plastics .....                      Receptacles .....                      metal .....                      plastics .....</p>	<p>steel (4A).                      natural wood, aluminum (4B).                      ordinary (4C1).                      natural wood, sift proof (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, solid (4H2).                      Drums.                      plastics, removable head (1H2).                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      Plywood (1D).                      fibre (1G).</p>
<p>113 .....                      PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For UN 0094 and UN 0305, no more than 50 g of substance must be packed in an inner packaging</li> <li>For UN 0027, inner packagings are not necessary when drums are used as the outer packaging</li> <li>At least one of the packagings must be sift-proof</li> <li>Sheets must only be used for UN 0028</li> </ol>	<p>Bags .....                      paper .....                      plastics .....                      textile, rubberized ..                      Receptacles .....                      fibreboard .....                      metal .....                      plastics .....                      wood .....                      Sheets .....                      paper, kraft .....                      paper, waxed .....</p>	<p>Not necessary .....</p>	<p>Boxes.                      steel (4A).                      aluminum (4B).                      natural wood, ordinary (4C1).                      natural wood, sift-proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, solid (4H2).                      Drums                      plastics, removable head (1H2).                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      Plywood (1D).                      fibre (1G).</p>
<p>114(a) This packing instruction applies to wetted solids.                      PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For UN 0077, 0234, 0235 and 0236, packagings must be lead free.</li> <li>For UN 0342, inner packagings are not required when metal (1A2 or 1B2) or plastics (1H2) drums are used as outer packagings.</li> <li>Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.</li> </ol>	<p>Bags .....                      plastics .....                      textile .....                      woven plastics .....                      Receptacles .....                      metal .....                      plastics .....</p>	<p>Bags .....                      plastics .....                      textile, plastic coated or lined.                      Receptacles .....                      metal .....                      plastics .....</p>	<p>Boxes.                      steel (4A).                      natural wood, ordinary (4C1).                      natural wood, sift proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, solid (4H2).                      Drums.                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      plywood (1D).                      fibre (1G).                      plastics, removable head (1H2).</p>
<p>114(b) This packing instruction applies to dry solids ....</p>	<p>Bags .....</p>	<p>Not necessary .....</p>	<p>Boxes.</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For UN 0077, 0132, 0234, 0235 and 0236, packagings must be lead free</li> <li>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</li> <li>For UN 0160 and UN 0161, inner packagings are not required if drums are used as the outer packaging</li> </ol>	<p>paper, kraft .....                      plastics .....                      textile, sift-proof .....                      woven plastics, sift-proof.                      Receptacles .....                      fibreboard .....                      metal .....                      paper .....                      plastics .....                      woven plastics, sift-proof.</p>		<p>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)</p>
<p>115 .....                      PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <ol style="list-style-type: none"> <li>For liquid explosives, inner packagings must be surrounded with non-combustible absorbent cushioning material in sufficient quantity to absorb the entire liquid content. Metal receptacles should be cushioned from each other. The net mass of explosive per package may not exceed 30 kg when boxes are used as outer packaging. The net volume of explosive in each package other than boxes must not exceed 120 litres</li> <li>For UN 0075, 0143, 0495 and 0497 when boxes are used as the outer packaging, inner packagings must have taped screw cap closures and be not more than 5 litres capacity each. A composite packaging consisting of a plastic receptacle in a metal drum (6HA1) may be used in lieu of combination packagings. Liquid substances must not freeze at temperatures above -15 °C (+5 °F)</li> <li>For UN 0144, intermediate packagings are not necessary.</li> </ol>	<p>Receptacles .....                      metal .....                      plastics .....</p>	<p>Bags .....                      plastics in metal receptacles.                      Drums .....                      metal .....</p>	<p>Boxes.                      natural wood, ordinary (4C1).                      natural wood, sift proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      Drums.                      plastics, removable head (1H2).                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      plywood (1D).                      fibre (1G).                      Specification MC-200 containers may be used for transport by motor vehicle.</p>
<p>116 .....</p>	<p>Bags .....</p>	<p>Not necessary .....</p>	<p>Bags.</p>



TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. The following applies to UN 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0238, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0459 and 0488. Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</p>			<p>steel (4A). aluminium (4B). wood natural, ordinary (4C1). natural wood, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, expanded (4H1). plastics, solid (4H2). Drums. steel, removable head (1A2). aluminium, removable head (1B2). Plywood (1D). fibre (1G). plastics, removable head (1H2).</p>
<p>131 ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN 0029, 0267 and 0455, bags and reels may not be used as inner packagings</p> <p>2. For UN 0030, 0255 and 0456, inner packagings are not required when detonators are packed in pasteboard tubes, or when their leg wires are wound on spools with the caps either placed inside the spool or securely taped to the wire on the spool, so as to restrict free moving of the caps and to protect them from impact forces</p> <p>3. For UN 0360, 0361 and 0500, detonators are not required to be attached to the safety fuse, metal-clad mild detonating cord, detonating cord, or shock tube. Inner packagings are not required if the packing configuration restricts free moving of the caps and protects them from impact forces</p>	<p>Bags ..... paper. plastics ..... Receptacles ..... fibreboard ..... metal ..... plastics ..... wood ..... Reels .....</p>	<p>Not necessary .....</p>	<p>Boxes. steel (4A). aluminium (4B). wood, natural, 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).</p>
<p>132(a) For articles consisting of closed metal, plastic or fiberboard casings that contain detonating explosives, or consisting of plastics-bonded detonating explosives.</p>	<p>Not necessary .....</p>	<p>Not necessary .....</p>	<p>Boxes. steel (4A). aluminum (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fiberboard (4G). plastics, solid (4H2).</p>
<p>132(b) For articles without closed casings .....</p>	<p>Receptacles fiberboard metal plastics. Sheets paper plastics.</p>	<p>Not necessary .....</p>	<p>Boxes. steel (4A); aluminum (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fiberboard (4G). plastics, solid (4H2).</p>
<p>133 .....</p>	<p>Receptacles .....</p>	<p>Receptacles .....</p>	<p>Boxes.</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:                      1. For UN 0043, 0212, 0225, 0268 and 0306 trays are not authorized as inner packagings</p>	<p>Intermediate packagings are only required when trays are used as inner packagings.                      fibreboard .....                      metal .....                      plastics .....                      wood .....                      Trays, fitted with dividing partitions .....                      fibreboard .....                      plastics .....                      wood .....</p>	<p>fibreboard .....                      metal .....                      plastics .....                      wood .....</p>	<p>steel (4A).                      aluminium (4B).                      wood, natural, ordinary (4C1).                      wood, natural, sift proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, solid (4H2).</p>
134 .....	<p>Bags .....                      water resistant .....                      Receptacles .....                      fibreboard .....                      metal .....                      plastics .....                      wood .....                      Sheets .....                      fibreboard, corrugated.                      Tubes .....                      fibreboard .....</p>	Not necessary .....	<p>Boxes.                      steel (4A).                      aluminium (4B).                      wood, natural, ordinary (4C1).                      wood, natural, sift proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, solid (4H2).                      Drums.                      fibreboard (1G).                      plastics, removable head (1H2).                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      Plywood (1D).</p>
135 .....	<p>Bags .....                      paper .....                      plastics .....                      Receptacles .....                      fibreboard .....                      metal .....                      plastics .....                      wood .....                      Sheets .....                      paper .....                      plastics .....</p>	Not necessary .....	<p>Boxes.                      steel (4A).                      aluminium (4B).                      wood, natural, ordinary (4C1).                      wood, natural, sift proof walls (4C2).                      plywood (4D).                      reconstituted wood (4F).                      fibreboard (4G).                      plastics, expanded (4H1).                      plastics, solid (4H2).                      Drums.                      steel, removable head (1A2).                      aluminium, removable head (1B2).                      Plywood (1D).                      fibre (1G).                      plastics, removable head (1H2).</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
136 .....	Bags ..... plastics ..... textile ..... Boxes ..... fibreboard ..... plastics ..... wood ..... Dividing partitions in the outer packagings .....	Not necessary .....	Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2). Drums. steel, removable head (1A2). aluminium, removable head (1B2). Plywood (1D). fibre (1G). plastics, removable head (1H2).
137 PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity must face downwards and the package marked "THIS SIDE UP". When the shaped charges are packed in pairs, the conical cavities must face inwards to minimize the jetting effect in the event of accidental initiation.	Bags ..... plastics ..... Boxes ..... fibreboard ..... Tubes ..... fibreboard ..... metal ..... plastics ..... Dividing partitions in the outer packagings.	Not necessary .....	Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G).
138 ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: If the ends of the articles are sealed, inner packagings are not necessary	Bags ..... plastics .....	Not necessary .....	Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2). Drums. fibreboard (1G). plastics, removable head (1H2). steel, removable head (1A2). aluminium, removable head (1B2).
139 .....	Bags .....	Not necessary .....	Boxes.

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. For UN 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of CORD DETONATING flexible must be fastened securely</p> <p>2. For UN 0065 and UN 0289, inner packagings are not required when they are fastened securely in coils</p>	<p>plastics .....</p> <p>Receptacles .....</p> <p>fibreboard .....</p> <p>metal .....</p> <p>plastics .....</p> <p>wood .....</p> <p>Reels .....</p> <p>.....</p> <p>Sheets .....</p> <p>paper .....</p> <p>plastics .....</p>	<p>.....</p>	<p>steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2).</p> <p>Drums. steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G). plastics, removable head (1H2).</p>
<p>140 .....</p> <p>PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS:</p> <p>1. If the ends of UN 0105 are sealed, no inner packagings are required</p> <p>2. For UN 0101, the packaging must be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps</p> <p>3. For UN 0101, steel or aluminium boxes or drums must not be used</p>	<p>Bags .....</p> <p>plastics .....</p> <p>Reels .....</p> <p>Sheets .....</p> <p>paper, kraft .....</p> <p>plastics .....</p>	<p>Not necessary .....</p>	<p>Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2).</p> <p>Drums. plastics, removable head (1H2). steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G).</p>
<p>141 .....</p>	<p>Receptacles .....</p> <p>fibreboard .....</p> <p>metal .....</p> <p>plastics .....</p> <p>wood .....</p> <p>.....</p> <p>Trays, fitted with dividing partitions. plastics .....</p> <p>wood .....</p> <p>Dividing partitions in the outer packagings.</p>	<p>Not necessary .....</p>	<p>Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2).</p> <p>Drums. steel, removable head (1A2). aluminium, removable head (1B2). Plywood (1D). fibre (1G). plastics, removable head (1H2).</p>

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
142 .....	Bags ..... paper ..... plastics ..... Receptacles ..... fibreboard ..... metal ..... plastics ..... wood ..... Sheets ..... paper ..... Trays, fitted with dividing partitions. plastics .....	Not necessary .....	Boxes. steel (4A). aluminium (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2). Drums. steel, removable head (1A2). aluminium, removable head (1B2). Plywood (1D). fibre (1G). plastics, removable head (1H2).
143 ..... PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: 1. For UN 0271, 0272, 0415 and 0491 when metal packagings are used, metal packagings must be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented 2. Composite packagings (6HH2) (plastic receptacle with outer solid box) may be used in lieu of combination packagings	Bag ..... paper, kraft ..... plastics ..... textile ..... textile, rubberized .. Receptacles ..... fibreboard ..... metal ..... plastics ..... Trays, fitted with dividing partitions. plastics ..... wood .....	Not necessary .....	Boxes. steel (4A). aluminum (4B). wood, natural, ordinary (4C1). wood, natural, sift proof walls (4C2). plywood (4D). reconstituted wood (4F). fibreboard (4G). plastics, solid (4H2). Drums. steel, removable head (1A2). aluminium, removable head (1B2). plywood (1D). fibre (1G). plastics, removable head (1H2).
144 .....  PARTICULAR PACKING REQUIREMENTS OR EXCEPTIONS: For UN 0248 and UN 0249, packagings must be protected against the ingress of water. When CONTRIVANCES, WATER ACTIVATED are transported unpackaged, they must be provided with at least two independent protective features which prevent the ingress of water	Receptacles .....  fibreboard ..... metal ..... plastics ..... Dividing partitions in the outer packagings.	Not necessary .....	Boxes. Drums. steel, removable head (1A2). aluminium, removable head (1B2). plastics, removable head (1H2). Plywood (1D). 2steel (4A). aluminum (4B). wood, natural, ordinary (4C1) with metal liner. plywood (4D) with metal liner. reconstituted wood (4F) with metal liner. plastics, expanded (4H1). plastics, solid (4H2).
US 1 1. A jet perforating gun, charged, oil well may be transported under the following conditions:			

TABLE OF PACKING METHODS—Continued

Packing instruction	Inner packagings	Intermediate packagings	Outer packagings
<p>a. Initiation devices carried on the same motor vehicle or offshore supply vessel must be segregated; each kind from every other kind, and from any gun, tool or other supplies, unless approved in accordance with § 173.56. Segregated initiation devices must be carried in a container having individual pockets for each such device or in a fully enclosed steel container lined with a non-sparking material. No more than two segregated initiation devices per gun may be carried on the same motor vehicle.</p> <p>b. Each shaped charge affixed to the gun may not contain more than 112 g (4 ounces) of explosives.</p> <p>c. Each shaped charge if not completely enclosed in glass or metal, must be fully protected by a metal cover after installation in the gun.</p> <p>d. A jet perforating gun classed as 1.1D or 1.4D may be transported by highway by private or contract carriers engaged in oil well operations.</p> <p>(i) A motor vehicle transporting a gun must have specially built racks or carrying cases designed and constructed so that the gun is securely held in place during transportation and is not subject to damage by contact, one to the other or any other article or material carried in the vehicle; and</p> <p>(ii) The assembled gun packed on the vehicle may not extend beyond the body of the motor vehicle.</p> <p>e. A jet perforating gun classed as 1.4D may be transported by a private offshore supply vessel only when the gun is carried in a motor vehicle as specified in paragraph (d) of this packing method or on offshore well tool pallets provided that:</p> <p>(i) All the conditions specified in paragraphs (a), (b), and (c) of this packing method are met;</p> <p>(ii) The total explosive contents do not exceed 90.8 kg (200 pounds) per tool pallet;</p> <p>(iii) Each cargo vessel compartment may contain up to 90.8 kg (200 pounds) of explosive content if the segregation requirements in § 176.83(b) of this subchapter are met; and</p> <p>(iv) When more than one vehicle or tool pallet is stowed "on deck" a minimum horizontal separation of 3 m (9.8 feet) must be provided.</p>			

[Amdt. 173-260, 62 FR 24720, May 6, 1997; 62 FR 45702, Aug. 28, 1997; 62 FR 51560, Oct. 1, 1997; 63 FR 1884, Jan. 12, 1998; 63 FR 52849, Oct. 1, 1998; 64 FR 51918, Sept. 27, 1999; 65 FR 50461, Aug. 18, 2000; 65 FR 58629, Sept. 29, 2000; 65 FR 60383, Oct. 11, 2000; 66 FR 33429, 33430, June 21, 2001; 66 FR 45183, 45379, 45382, Aug. 28, 2001; 68 FR 45033, July 31, 2003; 68 FR 48569, Aug. 14, 2003; 68 FR 61941, Oct. 30, 2003]

**§ 173.63 Packaging exceptions.**

(a) Cord, detonating (UN 0065), having an explosive content not exceeding 6.5 g (0.23 ounces) per 30 centimeter length (one linear foot) may be offered for transportation domestically and transported as Cord, detonating (UN 0289), Division 1.4 Compatibility Group D (1.4D) explosives, if the gross weight of all packages containing Cord, detonating (UN 0065), does not exceed 45 kg (99 pounds) per:

- (1) Transport vehicle, freight container, or cargo-only aircraft;
- (2) Off-shore down-hole tool pallet carried on an off-shore supply vessel;
- (3) Cargo compartment of a cargo vessel; or
- (4) Passenger-carrying aircraft used to transport personnel to remote work sites, such as offshore drilling units.

(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 reclassified, 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