

<b>P112(c)</b> <b>PACKING INSTRUCTION</b> <b>P112(c)</b> <b>(Solid dry powder 1.1D)</b>		
The following packagings are authorized, provided that the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper, multiwall, water-resistant plastics woven plastics <b>Receptacles</b> fibreboard metal plastics wood	<b>Bags</b> paper, multiwall, water-resistant with inner lining plastics <b>Receptacles</b> metal plastics wood	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Additional requirements:</b> 1. Inner packagings are not required if drums are used as the outer packaging. 2. The packaging shall be sift-proof.		
<b>Special packing provisions:</b> <b>PP26</b> For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings shall be lead free. <b>PP46</b> For UN No. 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. <b>PP48</b> For UN No. 0504, metal packagings shall not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in 6.1.4, are not considered metal packagings.		

P113 PACKING INSTRUCTION P113		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper plastics textile, rubberized <b>Receptacles</b> fibreboard metal plastics wood	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Additional requirement:</b> The packaging shall be sift-proof.		
<b>Special packing provisions:</b> <b>PP49</b> For UN Nos. 0094 and 0305, no more than 50 g of substance shall be packed in an inner packaging. <b>PP50</b> For UN No. 0027, inner packagings are not necessary when drums are used as outer packagings. <b>PP51</b> For UN No. 0028, paper kraft or waxed paper sheets may be used as inner packagings.		

P114(a)	PACKING INSTRUCTION (Solid wetted)		P114(a)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
Inner packagings	Intermediate packagings	Outer packagings	
<b>Bags</b> plastics textile woven plastics <b>Receptacles</b> metal plastics wood	<b>Bags</b> plastics textile, plastic coated or lined <b>Receptacles</b> metal plastics <b>Dividing partitions</b> wood	<b>Boxes</b> steel (4A) metal, other than steel or aluminium (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)	
<b>Additional requirement:</b> Intermediate packagings are not required if leakproof removable head drums are used as outer packagings.			
<b>Special packing provisions:</b> <b>PP26</b> For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free. <b>PP43</b> For UN No. 0342, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings.			

P114(b)	PACKING INSTRUCTION (Solid dry)		P114(b)
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
Inner packagings	Intermediate packagings	Outer packagings	
<b>Bags</b> paper, kraft plastics textile, sift-proof woven plastics, sift-proof  <b>Receptacles</b> fibreboard metal paper plastics woven plastics, sift-proof wood	Not necessary	<b>Boxes</b> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G)  <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)	
<b>Special packing provisions:</b> <b>PP26</b> For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings shall be lead free. <b>PP48</b> For UN Nos. 0508 and 0509, metal packagings shall not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in 6.1.4, are not considered metal packagings. <b>PP50</b> For UN Nos. 0160, 0161 and 0508, inner packagings are not necessary if drums are used as outer packagings. <b>PP52</b> For UN Nos. 0160 and 0161, when metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) are used as outer packagings, metal packagings shall be so constructed that the risk of explosion, by reason of increase internal pressure from internal or external causes is prevented.			



P115 PACKING INSTRUCTION P115		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Receptacles</b> plastics wood	<b>Bags</b> plastics in metal receptacles <b>Drums</b> metal <b>Receptacles</b> wood	<b>Boxes</b> natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provisions:</b> <b>PP45</b> For UN No. 0144, intermediate packagings are not required. <b>PP53</b> For UN Nos. 0075, 0143, 0495 and 0497, when boxes are used as outer packagings, inner packagings shall have taped screw cap closures and be not more than 5 litres capacity each. Inner packagings shall be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material shall be sufficient to absorb the liquid contents. Metal receptacles shall be cushioned from each other. Net mass of propellant is limited to 30 kg for each package when outer packagings are boxes. <b>PP54</b> For UN Nos. 0075, 0143, 0495 and 0497, when drums are used as outer packagings and when intermediate packagings are drums, they shall be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastics receptacle in a metal drum may be used instead of the inner and intermediate packagings. The net volume of propellant in each package shall not exceed 120 litres. <b>PP55</b> For UN No. 0144, absorbent cushioning material shall be inserted. <b>PP56</b> For UN No. 0144, metal receptacles may be used as inner packagings. <b>PP57</b> For UN Nos. 0075, 0143, 0495 and 0497, bags shall be used as intermediate packagings when boxes are used as outer packagings. <b>PP58</b> For UN Nos. 0075, 0143, 0495 and 0497, drums shall be used as intermediate packagings when drums are used as outer packagings. <b>PP59</b> For UN No. 0144, fibreboard boxes (4G) may be used as outer packagings. <b>PP60</b> For UN No. 0144, aluminium drums (1B1 and 1B2) and metal, other than steel or aluminium, drums (1N1 and 1N2) shall not be used.		

P116	PACKING INSTRUCTION		P116
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:			
Inner packagings	Intermediate packagings	Outer packagings	
<b>Bags</b> paper, water- and oil-resistant plastics textile, plastic coated or lined woven plastics, sift-proof <b>Receptacles</b> fibreboard, water-resistant metal plastics wood, sift-proof <b>Sheets</b> paper, water-resistant paper, waxed plastics	Not necessary	<b>Bags</b> woven plastics (5H1, 5H2, 5H3) paper, multiwall, water-resistant (5M2) plastics, film (5H4) textile, sift-proof (5L2) textile, water-resistant (5L3) <b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2) <b>Jerricans</b> steel (3A1, 3A2) plastics (3H1, 3H2)	
<b>Special packing provisions:</b> <b>PP61</b> For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required if leakproof removable head drums are used as outer packagings. <b>PP62</b> For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid. <b>PP63</b> For UN No. 0081, inner packagings are not required when contained in rigid plastic which is impervious to nitric esters. <b>PP64</b> For UN No. 0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings. <b>PP65</b> (Deleted) <b>PP66</b> For UN No. 0081, bags shall not be used as outer packagings.			

P130	PACKING INSTRUCTION	P130
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
Not necessary	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2)  <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provision:</b>  <b>PP67</b> The following applies to UN Nos. 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 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, 0488, 0502 and 0510:  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 shall be protected against stimuli encountered during normal conditions of carriage. A negative result in test series 4 on an unpackaged article indicates that the article can be considered for carriage unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.  <i><b>NOTE:</b> The packagings authorized may exceed a net mass of 400 kg (see 4.1.3.3).</i>		

P131 PACKING INSTRUCTION P131		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper plastics <b>Receptacles</b> fibreboard metal plastics wood <b>Reels</b>	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provision:</b> <b>PP68</b> For UN Nos. 0029, 0267 and 0455, bags and reels shall not be used as inner packagings.		

P132(a) PACKING INSTRUCTION P132(a)		
(Articles consisting of closed metal, plastics or fibreboard casings that contain a detonating explosive, or consisting of plastics-bonded detonating explosives)		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
Not necessary	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) wood, natural, ordinary (4C1) wood, natural, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)

<b>P132(b)</b> <b>PACKING INSTRUCTION</b> <b>P132(b)</b> <b>(Articles without closed casings)</b>		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Receptacles</b> fibreboard metal plastics wood <b>Sheets</b> paper plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)

<b>P133</b> <b>PACKING INSTRUCTION</b> <b>P133</b>		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Receptacles</b> fibreboard metal plastics wood <b>Trays, fitted with dividing partitions</b> fibreboard plastics wood	<b>Receptacles</b> fibreboard metal plastics wood	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)
<b>Additional requirement:</b> Receptacles are only required as intermediate packagings when the inner packagings are trays.		
<b>Special packing provision:</b> <b>PP69</b> For UN Nos. 0043, 0212, 0225, 0268 and 0306, trays shall not be used as inner packagings.		



P134 PACKING INSTRUCTION P134		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> water-resistant <b>Receptacles</b> fibreboard metal plastics wood <b>Sheets</b> fibreboard, corrugated <b>Tubes</b> fibreboard	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P135 PACKING INSTRUCTION P135		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper plastics <b>Receptacles</b> fibreboard metal plastics wood <b>Sheets</b> paper plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)



P136 PACKING INSTRUCTION P136		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> plastics textile <b>Boxes</b> fibreboard plastics wood <b>Dividing partitions in the outer packagings</b>	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P137 PACKING INSTRUCTION P137		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> plastics <b>Boxes</b> fibreboard wood <b>Tubes</b> fibreboard metal plastics <b>Dividing partitions in the outer packagings</b>	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provision:</b> <b>PP70</b> For UN Nos. 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity shall face downwards and the package shall be marked as illustrated in figures 5.2.1.10.1.1 or 5.2.1.10.1.2. When the shaped charges are packed in pairs, the conical cavities shall face inwards to minimize the jetting effect in the event of accidental initiation.		

P138 PACKING INSTRUCTION P138		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Additional requirement:</b> If the ends of the articles are sealed, inner packagings are not necessary.		

P139 PACKING INSTRUCTION P139		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> plastics <b>Receptacles</b> fibreboard metal plastics wood <b>Reels</b> <b>Sheets</b> paper plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2)  <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provisions:</b> <b>PP71</b> For UN Nos. 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord shall be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of flexible detonating cord shall be fastened securely. <b>PP72</b> For UN Nos. 0065 and 0289, inner packagings are not required when they are in coils.		

P140 PACKING INSTRUCTION P140		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> plastics <b>Receptacles</b> wood <b>Reels</b> <b>Sheets</b> paper, kraft plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Special packing provisions:</b> <b>PP73</b> For UN No. 0105, no inner packagings are required if the ends are sealed. <b>PP74</b> For UN No. 0101, the packaging shall be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps. <b>PP75</b> For UN No. 0101, steel, aluminium or other metal boxes or drums shall not be used.		

P141 PACKING INSTRUCTION P141		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Receptacles</b> fibreboard metal plastics wood <b>Trays, fitted with dividing partitions</b> plastics wood <b>Dividing partitions in the outer packagings</b>	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P142 PACKING INSTRUCTION P142		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper plastics <b>Receptacles</b> fibreboard metal plastics wood <b>Sheets</b> paper <b>Trays, fitted with dividing partitions</b> plastics	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P143 PACKING INSTRUCTION P143		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Bags</b> paper, kraft plastics textile textile, rubberized <b>Receptacles</b> fibreboard metal plastics wood <b>Trays, fitted with dividing partitions</b> plastics wood	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
<b>Additional requirement:</b> Instead of the above inner and outer packagings, composite packagings (6HH2) (plastics receptacle with outer solid plastics box) may be used.		
<b>Special packing provision:</b> <b>PP76</b> For UN Nos. 0271, 0272, 0415 and 0491, when metal packagings are used, metal packagings shall be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented.		

P144 PACKING INSTRUCTION P144		
The following packagings are authorized, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:		
Inner packagings	Intermediate packagings	Outer packagings
<b>Receptacles</b> fibreboard metal plastics wood <b>Dividing partitions in the outer packagings</b>	Not necessary	<b>Boxes</b> steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary with metal liner (4C1) plywood (4D) with metal liner reconstituted wood (4F) with metal liner plastics, expanded (4H1) plastics, solid (4H2) <b>Drums</b> steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plastics (1H1, 1H2)
<b>Special packing provision:</b> <b>PP77</b> For UN Nos. 0248 and 0249, packagings shall be protected against the ingress of water. When water-activated contrivances are transported unpackaged, they shall be provided with at least two independent protective features which prevent the ingress of water. <i>NOTE: The packagings authorized may exceed a net mass of 400 kg (see 4.1.3.3).</i>		



P200	PACKING INSTRUCTION	P200
<p><b>Type of packagings:</b> Cylinders, tubes, pressure drums and bundles of cylinders</p> <p>Cylinders, tubes, pressure drums and bundles of cylinders are authorised provided the special packing provisions of 4.1.6, the provisions listed below under (1) to (9) and, when referred to in the column "Special packing provisions" of tables 1, 2 or 3, the relevant special packing provisions listed below under (10), are met.</p> <p><b>General</b></p> <p>(1) Pressure receptacles shall be so closed and leakproof as to prevent escape of the gases.</p> <p>(2) Pressure receptacles containing toxic substances with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> (ppm) as specified in the table shall not be equipped with any pressure relief device. Pressure relief devices shall be fitted on UN pressure receptacles used for the carriage of UN No. 1013 carbon dioxide and UN No. 1070 nitrous oxide.</p> <p>(3) The following three tables cover compressed gases (Table 1), liquefied and dissolved gases (Table 2) and substances not in Class 2 (Table 3). They provide:</p> <p>(a) The UN number, name and description, and the classification code of the substance;</p> <p>(b) The LC<sub>50</sub> for toxic substances;</p> <p>(c) The types of pressure receptacles authorised for the substance, shown by the letter "X";</p> <p>(d) The maximum test period for periodic inspection of the pressure receptacles;</p> <p><i>NOTE: For pressure receptacles which make use of composite materials, the maximum test period shall be 5 years. The test period may be extended to that specified in Tables 1 and 2 (i.e. up to 10 years), if approved by the competent authority or body designated by this authority which issued the type approval.</i></p> <p>(e) The minimum test pressure of the pressure receptacles;</p> <p>(f) The maximum working pressure of the pressure receptacles for compressed gases (where no value is given, the working pressure shall not exceed two thirds of the test pressure) or the maximum filling ratio(s) dependent on the test pressure(s) for liquefied and dissolved gases;</p> <p>(g) Special packing provisions that are specific to a substance.</p> <p><b>Test pressure, filling ratios and filling requirements</b></p> <p>(4) The minimum test pressure required for is 1 MPa (10 bar).</p> <p>(5) In no case shall pressure receptacles be filled in excess of the limit permitted in the following requirements:</p> <p>(a) For compressed gases, the working pressure shall be not more than two thirds of the test pressure of the pressure receptacles. Restrictions to this upper limit on working pressure are imposed by (10), special packing provision "o". In no case shall the internal pressure at 65 °C exceed the test pressure.</p> <p>(b) For high pressure liquefied gases, the filling ratio shall be such that the settled pressure at 65 °C does not exceed the test pressure of the pressure receptacles.</p> <p>The use of test pressures and filling ratios other than those in the table is permitted, except where (10), special packing provision "o" applies, provided that:</p> <p>(i) the criterion of (10), special packing provision "r" is met when applicable; or</p> <p>(ii) the above criterion is met in all other cases.</p> <p>For high pressure liquefied gases and gas mixtures for which relevant data are not available, the maximum filling ratio (FR) shall be determined as follows:</p> $FR = 8.5 \times 10^{-4} \times d_g \times P_h$ <p>where:</p> <p>FR = maximum filling ratio</p> <p><math>d_g</math> = gas density (at 15 °C, 1 bar)(in kg/m<sup>3</sup>)</p> <p><math>P_h</math> = minimum test pressure (in bar)</p>		

Cont'd on next page



P200	PACKING INSTRUCTION (cont'd)	P200
<p>If the density of the gas is unknown, the maximum filling ratio shall be determined as follows:</p> $FR = \frac{P_h \times MM \times 10^{-3}}{R \times 338}$ <p>where:</p> <p><math>FR</math> = maximum filling ratio</p> <p><math>P_h</math> = minimum test pressure (in bar)</p> <p><math>MM</math> = molecular mass (in g/mol)</p> <p><math>R = 8.31451 \times 10^{-2} \text{ bar} \cdot \text{l} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}</math> (gas constant).</p> <p>For gas mixtures, the average molecular mass is to be taken, taking into account the volumetric concentrations of the various components.</p> <p>(c) For low pressure liquefied gases, the maximum mass of contents per litre of water capacity shall equal 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase shall not fill the pressure receptacle at any temperature up to 60 °C. The test pressure of the pressure receptacle shall be at least equal to the vapour pressure (absolute) of the liquid at 65 °C, minus 100 kPa (1 bar).</p> <p>For low pressure liquefied gases and gas mixtures for which relevant data are not available, the maximum filling ratio shall be determined as follows:</p> $FR = (0.0032 \times BP - 0.24) \times d_l$ <p>where:</p> <p><math>FR</math> = maximum filling ratio</p> <p><math>BP</math> = boiling point (in Kelvin)</p> <p><math>d_l</math> = density of the liquid at boiling point (in kg/l);</p> <p>(d) For UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free, see (10), special packing provision "p".</p> <p>(e) For liquefied gases charged with compressed gases, both components – the liquefied gas and the compressed gas – have to be taken into consideration in the calculation of the internal pressure in the pressure receptacle. The maximum mass of contents per litre of water capacity shall not exceed 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase shall not completely fill the pressure receptacle at any temperature up to 60 °C.</p> <p>When filled, the internal pressure at 65 °C shall not exceed the test pressure of the pressure receptacles. The vapour pressures and volumetric expansions of all substances in the pressure receptacles shall be considered. When experimental data is not available, the following steps shall be carried out:</p> <ol style="list-style-type: none"> <li>Calculation of the vapour pressure of the liquefied gas and of the partial pressure of the compressed gas at 15 °C (filling temperature);</li> <li>Calculation of the volumetric expansion of the liquid phase resulting from the heating from 15 °C to 65 °C and calculation of the remaining volume for the gaseous phase;</li> <li>Calculation of the partial pressure of the compressed gas at 65 °C considering the volumetric expansion of the liquid phase;</li> </ol> <p><b>NOTE:</b> The compressibility factor of the compressed gas at 15 °C and 65 °C shall be considered.</p> <ol style="list-style-type: none"> <li>Calculation of the vapour pressure of the liquefied gas at 65 °C;</li> <li>The total pressure is the sum of the vapour pressure of the liquefied gas and the partial pressure of the compressed gas at 65 °C;</li> <li>Consideration of the solubility of the compressed gas at 65 °C in the liquid phase;</li> </ol> <p>The test pressure of the pressure receptacle shall not be less than the calculated total pressure minus 100 kPa (1 bar).</p> <p>If the solubility of the compressed gas in the liquid phase is not known for the calculation, the test pressure can be calculated without taking the gas solubility (sub-paragraph (vi)) into account.</p>		

Cont'd on next page

P200	PACKING INSTRUCTION (cont'd)	P200
(6)	Other test pressure and filling ratio may be used provided they satisfy the general requirements outlined in paragraphs (4) and (5) above.	
(7)	<p>(a) The filling of pressure receptacles may only be carried out by specially-equipped centres, with qualified staff using appropriate procedures.</p> <p>The procedures should include checks:</p> <ul style="list-style-type: none"> <li>(i) Of the conformity of receptacles and accessories with ADR;</li> <li>(ii) Of their compatibility with the product to be carried;</li> <li>(iii) Of the absence of damage which might affect safety;</li> <li>(iv) Of compliance with the filling ratio or pressure of filling, as appropriate;</li> <li>(v) Of marks and identification.</li> </ul> <p>(b) LPG to be filled in cylinders shall be of high quality; this is deemed to be fulfilled if the LPG to be filled is in compliance with the limitations on corrosiveness as specified in ISO 9162:1989.</p>	
	<b>Periodic inspections</b>	
(8)	Refillable pressure receptacles shall be subjected to periodic inspections in accordance with the requirements of 6.2.1.6 and 6.2.3.5 respectively.	
(9)	<p>If special provisions for certain substances do not appear in the tables below, periodic inspections shall be carried out:</p> <ul style="list-style-type: none"> <li>(a) Every 5 years in the case of pressure receptacles intended for the carriage of gases of classification codes 1T, 1TF, 1TO, 1TC, 1TFC, 1TOC, 2T, 2TO, 2TF, 2TC, 2TFC, 2TOC, 4A, 4F and 4TC;</li> <li>(b) Every 5 years in the case of pressure receptacles intended for the carriage of substances from other classes;</li> <li>(c) Every 10 years in the case of pressure receptacles intended for the carriage of gases of classification codes 1A, 1O, 1F, 2A, 2O and 2F.</li> </ul> <p>For pressure receptacles which make use of composite materials, the maximum test period shall be 5 years. The test period may be extended to that specified in Tables 1 and 2 (i.e. up to 10 years), if approved by the competent authority or body designated by this authority which issued the type approval.</p>	
	<b>Special packing provisions</b>	
(10)	<p><b>Material compatibility</b></p> <ul style="list-style-type: none"> <li>a: Aluminium alloy pressure receptacles shall not be used.</li> <li>b: Copper valves shall not be used.</li> <li>c: Metal parts in contact with the contents shall not contain more than 65 % copper.</li> <li>d: When steel pressure receptacles or composite pressure receptacles with steel liners are used, only those bearing the "H" mark in accordance with 6.2.2.7.4 (p) are permitted.</li> </ul>	

*Cont'd on next page*

P200	PACKING INSTRUCTION (cont'd)	P200
	<p><b>Requirements for toxic substances with an <math>LC_{50}</math> less than or equal to 200 ml/m<sup>3</sup> (ppm)</b></p> <p>k: Valve outlets shall be fitted with pressure retaining gas-tight plugs or caps having threads that match those of the valve outlets and made of material not liable to attack by the contents of the pressure receptacle.</p> <p>Each cylinder within a bundle shall be fitted with an individual valve that shall be closed during carriage. After filling, the manifold shall be evacuated, purged and plugged.</p> <p>Bundles containing UN No. 1045 Fluorine, compressed, may be constructed with isolation valves on groups of cylinders not exceeding 150 litres total water capacity instead of isolation valves on every cylinder.</p> <p>Cylinders and individual cylinders within a bundle shall have a test pressure greater than or equal to 200 bar and a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel. Individual cylinders not complying with this requirement shall be carried in a rigid outer packaging that will adequately protect the cylinder and its fittings and meeting the packing group I performance level. Pressure drums shall have a minimum wall thickness as specified by the competent authority.</p> <p>Pressure receptacles shall not be fitted with a pressure relief device.</p> <p>Cylinders and individual cylinders in a bundle shall be limited to a maximum water capacity of 85 litres.</p> <p>Each valve shall be capable of withstanding the test pressure of the pressure receptacle and be connected directly to the pressure receptacle by either a taper thread or other means which meets the requirements of ISO 10692-2:2001.</p> <p>Each valve shall either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.</p> <p>Carriage in capsules is not allowed.</p> <p>Each pressure receptacle shall be tested for leakage after filling.</p> <p><b>Gas specific provisions</b></p> <p>l: UN No. 1040 ethylene oxide may also be packed in hermetically sealed glass or metal inner packagings suitably cushioned in fibreboard, wooden or metal boxes meeting the packing group I performance level. The maximum quantity permitted in any glass inner packaging is 30 g, and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, each inner packaging shall be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. The maximum net mass in any outer packaging shall not exceed 2.5 kg.</p> <p>m: Pressure receptacles shall be filled to a working pressure not exceeding 5 bar.</p> <p>n: Cylinders and individual cylinders in a bundle shall contain not more than 5 kg of the gas. When bundles containing UN No. 1045 Fluorine, compressed are divided into groups of cylinders in accordance with special packing provision "k" each group shall contain not more than 5 kg of the gas.</p> <p>o: In no case shall the working pressure or filling ratio shown in the tables be exceeded.</p> <p>p: For UN No. 1001 acetylene, dissolved, and UN No. 3374 acetylene, solvent free: cylinders shall be filled with a homogeneous monolithic porous material; the working pressure and the quantity of acetylene shall not exceed the values prescribed in the approval or in ISO 3807 1:2000, ISO 3807-2:2000 or ISO 3807:2013, as applicable.</p> <p>For UN No. 1001 acetylene, dissolved: cylinders shall contain a quantity of acetone or suitable solvent as specified in the approval (see ISO 3807-1:2000, ISO 3807-2:2000 or ISO 3807:2013 as applicable); cylinders manifolded together shall be carried vertically.</p> <p>Alternatively, for UN No. 1001 acetylene, dissolved: cylinders which are not UN pressure receptacles may be filled with a non monolithic porous material; the working pressure, the quantity of acetylene and the quantity of solvent shall not exceed the values prescribed in the approval. The maximum test period for periodic inspection of the cylinders shall not exceed five years.</p> <p>q: Valve outlets of pressure receptacles for pyrophoric gases or flammable mixtures of gases containing more than 1 % of pyrophoric compounds shall be fitted with gas-tight plugs or caps which shall be made of material not liable to attack by the contents of the pressure receptacle. When these pressure receptacles are manifolded in a bundle, each of the pressure receptacles shall be fitted with an individual valve that shall be closed during carriage, and the outlet of the manifold valve shall be fitted with a pressure retaining gas-tight plug or cap. Gas-tight plugs or caps shall have threads that match those of the valve outlets. Carriage in capsules is not allowed.</p>	

*Cont'd on next page*



P200	PACKING INSTRUCTION (cont'd)	P200
r:	The filling ratio of this gas shall be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the pressure receptacle.	
ra:	<p>This gas may also be packed in capsules under the following conditions:</p> <ul style="list-style-type: none"> <li>(a) The mass of gas shall not exceed 150 g per capsule;</li> <li>(b) The capsules shall be free from faults liable to impair the strength;</li> <li>(c) The leakproofness of the closure shall be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any leakage of the closure during carriage;</li> <li>(d) The capsules shall be placed in an outer packaging of sufficient strength. A package shall not weigh more than 75 kg.</li> </ul>	
s:	<p>Aluminium alloy pressure receptacles shall be:</p> <ul style="list-style-type: none"> <li>(a) Equipped only with brass or stainless steel valves; and</li> <li>(b) Cleaned for hydrocarbons contamination and not contaminated with oil. UN pressure receptacles shall be cleaned in accordance with ISO 11621:1997.</li> </ul>	
ta:	<p>Other criteria may be used for filling of welded steel cylinders intended for the carriage of substances of UN No. 1965:</p> <ul style="list-style-type: none"> <li>(a) With the agreement of the competent authorities of the countries where the carriage is carried out; and</li> <li>(b) In compliance with the provisions of a national code or standard recognised by the competent authorities.</li> </ul>	
	<p>When the criteria for filling are different from those in P200(5), the transport document shall include the statement "Carriage in accordance with packing instruction P200, special packing provision ta" and the indication of the reference temperature used for the calculation of the filling ratio.</p>	
	<p>Periodic inspection</p>	
u:	<p>The interval between periodic tests may be extended to 10 years for aluminium alloy pressure receptacles. This derogation may only be applied to UN pressure receptacles when the alloy of the pressure receptacle has been subjected to stress corrosion testing as specified in ISO 7866:2012 + Cor 1: 2014.</p>	
ua:	<p>The interval between periodic tests may be extended to 15 years for aluminium alloy cylinders and bundles of such cylinders if the provisions of paragraph (13) of this packing instruction are applied. This shall not apply to cylinders made from aluminium alloy AA 6351. For mixtures, this provision "ua" may be applied provided all the individual gases in the mixture have been allocated "ua" in Table 1 or Table 2.</p>	
v:	<p>(1) The interval between inspections for steel cylinders, other than refillable welded steel cylinders for UN Nos. 1011, 1075, 1965, 1969 or 1978, may be extended to 15 years:</p> <ul style="list-style-type: none"> <li>(a) With the agreement of the competent authority (authorities) of the country (countries) where the periodic inspection and the carriage take place; and</li> <li>(b) In accordance with the requirements of a technical code or a standard recognised by the competent authority</li> </ul> <p>(2) For refillable welded steel cylinders for UN Nos. 1011, 1075, 1965, 1969 or 1978, the interval may be extended to 15 years, if the provisions of paragraph (12) of this packing instruction are applied.</p>	
va:	<p>For seamless steel cylinders which are equipped with residual pressure valves (RPVs) (see note below) that have been designed and tested in accordance with EN ISO 15996:2005 + A1:2007 or EN ISO 15996:2017 and for bundles of seamless steel cylinders equipped with main valve(s) with a residual pressure device, tested in accordance with EN ISO 15996:2005 + A1:2007 or EN ISO 15996:2017, the interval between periodic tests may be extended to 15 years if the provisions of paragraph (13) of this packing instruction are applied. For mixtures, this provision "va" may be applied provided all the individual gases in the mixture have been allocated "va" in Table 1 or Table 2.</p>	
	<p><b>NOTE:</b> "Residual Pressure Valve" (RPV) means a closure which incorporates a residual pressure device that prevents ingress of contaminants by maintaining a positive differential between the pressure within the cylinder and the valve outlet. In order to prevent back-flow of fluids into the cylinder from a higher pressure source a "Non-Return Valve" (NRV) function shall either be incorporated into the residual pressure device or be a discrete additional device in the cylinder valve, e.g. a regulator.</p>	

*Cont'd on next page*

P200	PACKING INSTRUCTION (cont'd)	P200
	<p><b>Requirements for N.O.S. entries and for mixtures</b></p> <p>z: The construction materials of the pressure receptacles and their accessories shall be compatible with the contents and shall not react to form harmful or dangerous compounds therewith.</p> <p>The test pressure and filling ratio shall be calculated in accordance with the relevant requirements of (5).</p> <p>Toxic substances with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> shall not be carried in tubes, pressure drums or MEGCs and shall meet the requirements of special packing provision "k". However, UN No. 1975 Nitric oxide and dinitrogen tetroxide mixture may be carried in pressure drums.</p> <p>For pressure receptacles containing pyrophoric gases or flammable mixtures of gases containing more than 1 % pyrophoric compounds, the requirements of special packing provision "q" shall be met.</p> <p>The necessary steps shall be taken to prevent dangerous reactions (i.e. polymerisation or decomposition) during carriage. If necessary, stabilisation or addition of an inhibitor shall be required.</p> <p>Mixtures containing UN No. 1911 diborane, shall be filled to a pressure such that, if complete decomposition of the diborane occurs, two thirds of the test pressure of the pressure receptacle shall not be exceeded.</p> <p>Mixtures containing UN No. 2192 germane, other than mixtures of up to 35 % germane in hydrogen or nitrogen or up to 28 % germane in helium or argon, shall be filled to a pressure such that, if complete decomposition of the germane occurs, two thirds of the test pressure of the pressure receptacle shall not be exceeded.</p> <p>Mixtures of fluorine and nitrogen with a fluorine concentration below 35 % by volume may be filled in pressure receptacles up to a maximum allowable working pressure for which the partial pressure of fluorine does not exceed 3.1 MPa (31 bar) absolute.</p> $\text{working pressure (bar)} < \frac{31}{x_f} - 1$ <p>where:</p> <p><math>x_f</math> = fluorine concentration in % by volume/100.</p> <p>Mixtures of fluorine and inert gases with a fluorine concentration below 35 % by volume may be filled in pressure receptacles up to a maximum allowable working pressure for which the partial pressure of fluorine does not exceed 3.1 MPa (31 bar) absolute, additionally taking the coefficient of nitrogen equivalency in accordance with ISO 10156:2017 into account when calculating the partial pressure.</p> $\text{working pressure (bar)} < \frac{31}{x_f} (x_f + K_k \times x_k) - 1$ <p>where:</p> <p><math>x_f</math> = fluorine concentration in % by volume/100;</p> <p><math>K_k</math> = coefficient of equivalency of an inert gas relative to nitrogen (coefficient of nitrogen equivalency);</p> <p><math>x_k</math> = inert gas concentration in % by volume/100.</p> <p>However, the working pressure for mixtures of fluorine and inert gases shall not exceed 20 MPa (200 bar). The minimum test pressure of pressure receptacles for mixtures of fluorine and inert gases equals 1.5 times the working pressure or 20 MPa (200 bar), with the greater value to be applied.</p> <p><b>Requirements for substances not in Class 2</b></p> <p>ab: Pressure receptacles shall satisfy the following conditions:</p> <ol style="list-style-type: none"> <li>The pressure test shall include an inspection of the inside of the pressure receptacles and check of accessories;</li> <li>In addition resistance to corrosion shall be checked every two years by means of suitable instruments (e.g. ultrasound) and the condition of the accessories verified;</li> <li>Wall thickness shall not be less than 3 mm.</li> </ol> <p>ac: Tests and inspections shall be carried out under the supervision of an expert approved by the competent authority.</p>	

Cont'd on next page



P200	PACKING INSTRUCTION (cont'd)	P200
<p>ad: Pressure receptacles shall satisfy the following conditions:</p> <ul style="list-style-type: none"> <li>(a) Pressure receptacles shall be designed for a design pressure of not less than 2.1 MPa (21 bar) (gauge pressure);</li> <li>(b) In addition to the marks for refillable receptacles, the pressure receptacles shall bear the following particulars in clearly legible and durable characters: <ul style="list-style-type: none"> <li>(i) The UN number and the proper shipping name of the substance according to 3.1.2;</li> <li>(ii) The maximum permitted mass when filled and the tare of the pressure receptacle, including accessories fitted during filling, or the gross mass.</li> </ul> </li> </ul> <p>(11) The applicable requirements of this packing instruction are considered to have been complied with if the following standards, as relevant, are applied:</p>		
Applicable requirements	Reference	Title of document
(7)	EN 13365:2002 +A1:2005	Transportable gas cylinders – Cylinder bundles for permanent and liquefied gases (excluding acetylene) – Inspection at the time of filling
(7)	EN ISO 24431:2016	Gas cylinders – Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling
(7) (a)	ISO 10691:2004	Gas cylinders – Refillable welded steel cylinders for liquefied petroleum gas (LPG) – Procedures for checking before, during and after filling.
(7) (a)	ISO 11755:2005	Gas cylinders – Cylinder bundles for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling
(7) (a) and (10) p	EN ISO 11372:2011	Gas cylinders – Acetylene cylinders – Filling conditions and filling inspection
(7) (a) and (10) p	EN ISO 13088:2012 + A1:2020	Gas cylinders – Acetylene cylinder bundles – Filling conditions and filling inspection
(7) and (10) ta (b)	EN 1439:2021	LPG equipment and accessories – Procedure for checking transportable refillable LPG cylinders before, during and after filling
(7) and (10) ta (b)	EN 13952:2017	LPG equipment and accessories – Filling operations for LPG cylinders
<p>(12) An interval of 15 years for the periodic inspection of refillable welded steel cylinders may be granted in accordance with special packing provision v (2) of paragraph (10), if the following provisions are applied.</p> <p><b>1. General provisions</b></p> <p>1.1 For the application of this section, the competent authority shall not delegate its tasks and duties to Xb bodies (inspection bodies of type B) or IS (in-house inspection services) (for the definitions of Xb and IS, see 6.2.3.6.1).</p> <p>1.2 The owner of the cylinders shall apply to the competent authority for granting the 15 year interval, and shall demonstrate that the requirements of sub-paragraphs 2, 3 and 4 are met.</p>		

*Cont'd on next page*



P200	PACKING INSTRUCTION (cont'd)	P200
	<p>1.3 Cylinders manufactured since 1 January 1999 shall have been manufactured in conformity with the following standards:</p> <ul style="list-style-type: none"> <li>- EN 1442; or</li> <li>- EN 13322-1; or</li> <li>- Annex I, parts 1 to 3 to Council Directive 84/527/EEC<sup>a</sup></li> </ul> <p>as applicable according to the table in 6.2.4.</p> <p>Other cylinders manufactured before 1 January 2009 in conformity with ADR in accordance with a technical code accepted by the national competent authority may be accepted for a 15 year interval, if they are of equivalent safety to the provisions of ADR as applicable at the time of application.</p> <p>1.4 The owner shall submit documentary evidence to the competent authority demonstrating that the cylinders comply with the provisions of sub-paragraph 1.3. The competent authority shall verify that these conditions are met.</p> <p>1.5 The competent authority shall check whether the provisions of sub-paragraphs 2 and 3 are fulfilled and correctly applied. If all provisions are fulfilled, it shall authorise the 15-year interval for the cylinders. In this authorisation, the type of cylinder (as specified in the type approval) or a group of cylinders (see note) covered shall be clearly identified. The authorisation shall be delivered to the owner; the competent authority shall keep a copy. The owner shall keep the documents for as long as the cylinders are authorised for a 15 year interval.</p> <p><i>NOTE: A group of cylinders is defined by the production dates of identical cylinders for a period, during which the applicable provisions of ADR and of the technical code accepted by the competent authority have not changed in their technical content. Example: Cylinders of identical design and volume having been manufactured according to the provisions of ADR as applicable between 1 January 1985 and 31 December 1988 in combination with a technical code accepted by the competent authority applicable for the same period, form one group in terms of the provisions of this paragraph.</i></p> <p>1.6 The competent authority shall monitor the owner of the cylinders for compliance with the provisions of ADR and the authorisation given as appropriate, but at least every three years or when changes to the procedures are introduced.</p> <p><b>2. Operational provisions</b></p> <p>2.1 Cylinders having been granted a 15 year interval for periodic inspection shall only be filled in filling centres applying a documented quality system to ensure that all the provisions of paragraph (7) of this packing instruction and the requirements and responsibilities of EN 1439:2021 (or until 31 December 2024, EN 1439:2017) and EN 13952:2017 are fulfilled and correctly applied.</p> <p>2.2 The competent authority shall verify that these requirements are fulfilled and check this as appropriate, but at least every three years or when changes to the procedures are introduced.</p> <p>2.3 The owner shall provide documentary evidence to the competent authority that the filling centre complies with the provisions of sub-paragraph 2.1.</p> <p>2.4 If a filling centre is situated in a different Contracting Party to ADR, the owner shall provide additional documentary evidence that the filling centre is monitored accordingly by the competent authority of that Contracting Party to ADR.</p> <p>2.5 To prevent internal corrosion, only gases of high quality with very low potential contamination shall be filled into the cylinders. This is deemed to be fulfilled, if the gases conform to the limitations on corrosiveness as specified in ISO 9162:1989.</p>	

<sup>a</sup> Council directive on the approximation of the laws of the Member States relating to welded unalloyed steel gas cylinders, published in the Official Journal of the European Communities No. L 300 of 19.11.1984.

Cont'd on next page

P200	PACKING INSTRUCTION (cont'd)	P200
	<p><b>3. Provisions for qualification and periodic inspection</b></p> <p>3.1 Cylinders of a type or group already in use, for which a 15 year interval has been granted and to which the 15 year interval has been applied, shall be subject to a periodic inspection according to 6.2.3.5.</p> <p><i>NOTE: For the definition of a group of cylinders, see Note to sub paragraph 1.5.</i></p> <p>3.2 If a cylinder with a 15-year interval fails the hydraulic pressure test during a periodic inspection e.g. by bursting or leakage, the owner shall investigate and produce a report on the cause of the failure and if other cylinders (e.g. of the same type or group) are affected. In the latter case, the owner shall inform the competent authority. The competent authority shall then decide on appropriate measures and inform the competent authorities of all other Contracting Parties to ADR accordingly.</p> <p>3.3 If internal corrosion as defined in the standard applied (see sub-paragraph 1.3) has been detected, the cylinder shall be withdrawn from use and shall not be granted any further period for filling and carriage.</p> <p>3.4 Cylinders having been granted a 15 year interval shall only be fitted with valves designed and manufactured for a minimum 15 year period of use according to EN 13152:2001 + A1:2003, EN 13153:2001 + A1:2003, EN ISO 14245:2010, EN ISO 14245:2019, EN ISO 14245:2021, EN ISO 15995:2010, EN ISO 15995:2019 or EN ISO 15995:2021. After a periodic inspection, a new valve shall be fitted to the cylinder, except that manually operated valves, which have been refurbished or inspected according to EN 14912:2022 may be re-fitted, if they are suitable for another 15 year period of use. Refurbishment or inspection shall only be carried out by the manufacturer of the valves or according to his technical instruction by an enterprise qualified for such work and operating under a documented quality system.</p> <p><b>4. Marking</b></p> <p>Cylinders having been granted a 15 year interval for periodic inspection in accordance with this paragraph shall additionally be marked clearly and legibly with "P15Y". This mark shall be removed if the cylinder is no longer authorised for a 15 year interval.</p> <p><i>NOTE: This mark shall not apply to cylinders subject to the transitional provision in 1.6.2.9, 1.6.2.10 or the provisions of special packing provision v (1) of paragraph (10) of this packing instruction.</i></p> <p>(13) An interval of 15 years for the periodic inspection of seamless steel and aluminium alloy cylinders and bundles of such cylinders may be granted in accordance with special packing provisions ua or va of paragraph (10), if the following provisions are applied:</p> <p><b>1. General provisions</b></p> <p>1.1 For the application of this paragraph, the competent authority shall not delegate its tasks and duties to Xb bodies (inspection bodies of type B) or IS (in-house inspection services) (for the definitions of Xb and IS, see 6.2.3.6.1).</p> <p>1.2 The owner of the cylinders or bundles of cylinders shall apply to the competent authority for granting the 15 year interval, and shall demonstrate that the requirements of sub-paragraphs 2, 3 and 4 are met.</p>	

*Cont'd on next page*

P200	PACKING INSTRUCTION (cont'd)	P200
	<p>1.3 Cylinders manufactured since 1 January 1999 shall have been manufactured in conformity with one of the following standards:</p> <ul style="list-style-type: none"> <li>- EN 1964-1 or EN 1964-2; or</li> <li>- EN 1975; or</li> <li>- EN ISO 9809-1 or EN ISO 9809-2; or</li> <li>- EN ISO 7866; or</li> <li>- Annex I, parts 1 to 3 to Council Directive 84/525/EEC<sup>b</sup> and 84/526/EEC<sup>c</sup></li> </ul> <p>as applicable at the time of manufacture (see also the table in 6.2.4.1).</p> <p>Other cylinders manufactured before 1 January 2009 in conformity with ADR in accordance with a technical code accepted by the national competent authority may be accepted for a 15 year interval for periodic inspection, if they are of equivalent safety to the provisions of ADR as applicable at the time of application.</p> <p><i>NOTE: This provision is considered to be fulfilled if the cylinder has been reassessed according to the procedure for the reassessment of conformity described in Annex III of Directive 2010/35/EU of 16 June 2010 or Annex IV, Part II, of Directive 1999/36/EC of 29 April 1999.</i></p> <p>Cylinders and bundles of cylinders marked with the United Nations packaging symbol specified in 6.2.2.7.2 (a) shall not be granted a 15 year interval for periodic inspection.</p> <p>1.4 Bundles of cylinders shall be constructed such that contact between cylinders along the longitudinal axis of the cylinders does not result in external corrosion. The supports and restraining straps shall be such as to minimise the risk of corrosion to the cylinders. Shock absorbent materials used in supports shall only be allowed if they have been treated to eliminate water absorption. Examples of suitable materials are water-resistant belting and rubber.</p> <p>1.5 The owner shall submit documentary evidence to the competent authority demonstrating that the cylinders comply with the provisions of sub-paragraph 1.3. The competent authority shall verify that these conditions are met.</p> <p>1.6 The competent authority shall check whether the provisions of sub-paragraphs 2 and 3 are fulfilled and correctly applied. If all provisions are fulfilled, it shall authorise the 15 year interval for periodic inspection for the cylinders or bundles of cylinders. In this authorisation a group of cylinders (see note below) covered shall be clearly identified. The authorisation shall be delivered to the owner; the competent authority shall keep a copy. The owner shall keep the documents for as long as the cylinders are authorised for a 15 year interval.</p> <p><i>NOTE: A group of cylinders is defined by the production dates of identical cylinders for a period, during which the applicable provisions of ADR and of the technical code accepted by the competent authority have not changed in their technical content. Example: Cylinders of identical design and volume having been manufactured according to the provisions of ADR applicable between 1 January 1985 and 31 December 1988 in combination with a technical code accepted by the competent authority applicable for the same period form one group in terms of the provisions of this paragraph.</i></p> <p>1.7 The owner shall ensure compliance with the provisions of ADR and the authorisation given as appropriate and shall demonstrate this to the competent authority on request but at least every three years or when significant changes to the procedures are introduced.</p>	

<sup>b</sup> Council Directive on the approximation of the laws of the Member States relating to seamless, steel gas cylinders, published in the Official Journal of the European Communities No. L 300 of 19.11.1984.

<sup>c</sup> Council Directive on the approximation of the laws of the Member States relating to seamless, unalloyed aluminium and aluminium alloy gas cylinders, published in the Official Journal of the European Communities No. L 300 of 19.11.1984.

*Cont'd on next page*



P200	PACKING INSTRUCTION ( <i>cont'd</i> )	P200
<b>2. Operational provisions</b>		
2.1	Cylinders or bundles of cylinders having been granted a 15 year interval for periodic inspection shall only be filled in filling centres applying a documented and certified quality system to ensure that all the provisions of paragraph (7) of this packing instruction and the requirements and responsibilities of EN ISO 24431:2016 or EN 13365:2002 as applicable are fulfilled and correctly applied. The quality system, according to the ISO 9000 (series) or equivalent, shall be certified by an accredited independent body recognized by the competent authority. This includes procedures for pre- and post-fill inspections and the filling process for cylinders, bundles of cylinders and valves.	
2.2	Aluminium alloy cylinders and bundles of such cylinders without RPVs having been granted a 15 year interval for periodic inspection shall be checked prior to every fill in accordance with a documented procedure which shall at least include the following: <ul style="list-style-type: none"> <li>(a) Open the cylinder valve or the main valve of the bundle of cylinders to check for residual pressure;</li> <li>(b) If gas is emitted, the cylinder or bundle of cylinders may be filled;</li> <li>(c) If no gas is emitted, the internal condition of the cylinder or bundle of cylinders shall be checked for contamination;</li> <li>(d) If no contamination is detected, the cylinder or bundle of cylinders may be filled.</li> <li>(e) If contamination is detected corrective action is to be carried out.</li> </ul>	
2.3	Seamless steel cylinders fitted with RPVs and bundles of seamless steel cylinders equipped with main valve(s) with a residual pressure device having been granted a 15 year interval for periodic inspection shall be checked prior to every fill in accordance with a documented procedure which shall at least include the following: <ul style="list-style-type: none"> <li>(a) Open the cylinder valve or bundle of cylinders main valve to check for residual pressure;</li> <li>(b) If gas is emitted, the cylinder or bundle of cylinders may be filled;</li> <li>(c) If no gas is emitted the functioning of the residual pressure device shall be checked;</li> <li>(d) If the check shows that the residual pressure device has retained pressure the cylinder or bundle of cylinders may be filled;</li> <li>(e) If the check shows that the residual pressure device has not retained pressure, the internal condition of the cylinder or bundle of cylinders shall be checked for contamination: <ul style="list-style-type: none"> <li>(i) If no contamination is detected, the cylinder or bundle of cylinders may be filled following repair or replacement of the residual pressure device;</li> <li>(ii) If contamination is detected, a corrective action shall be carried out.</li> </ul> </li> </ul>	
2.4	To prevent internal corrosion, only gases of high quality with very low potential contamination shall be filled into cylinders or bundles of cylinders. This is deemed to be fulfilled, if the compatibility of gases/material is acceptable in accordance with EN ISO 11114-1:2020 + A1:2023 and EN ISO 11114-2:2021, and the gas quality meets the specifications in EN ISO 14175:2008 or, for gases not covered in the standard, a minimum purity of 99.5 % by volume and a maximum moisture content of 40 ml/m <sup>3</sup> (ppm). For nitrous oxide the values shall be a minimum purity of 98 % by volume and a maximum moisture content of 70 ml/m <sup>3</sup> (ppm).	
2.5	The owner shall ensure that the requirements of 2.1 to 2.4 are fulfilled and provide documentary evidence of this to the competent authority on request, but at least every three years or when significant changes to the procedures are introduced.	
2.6	If a filling centre is situated in a different Contracting Party to ADR, the owner shall provide to the competent authority, on request, additional documentary evidence that the filling centre is monitored accordingly by the competent authority of that Contracting Party to ADR. See also 1.2.	

*Cont'd on next page*

P200	PACKING INSTRUCTION (cont'd)	P200
<b>3. Provisions for qualification and periodic inspection</b>		
3.1 Cylinders and bundles of cylinders already in use, for which the conditions of sub-paragraph 2 have been met from the date of the last periodic inspection to the satisfaction of the competent authority, may have their inspection period extended to 15 years from the date of the last periodic inspection. Otherwise the change of test period from ten to fifteen years shall be made at the time of periodic inspection. The periodic inspection report shall indicate that this cylinder or bundle of cylinders shall be fitted with a residual pressure device as appropriate. Other documentary evidence may be accepted by the competent authority.		
3.2 If a cylinder with a 15 year interval fails the pressure test by bursting or leakage or if a severe defect is detected by a non-destructive test (NDT) during a periodic inspection the owner shall investigate and produce a report on the cause of the failure and if other cylinders (e.g. of the same type or group) are affected. In the latter case, the owner shall inform the competent authority. The competent authority shall then decide on appropriate measures and inform the competent authorities of all other Contracting Parties to ADR accordingly.		
3.3 If internal corrosion and other defects as defined in the periodic inspection standards referenced in 6.2.4 have been detected, the cylinder shall be withdrawn from use and shall not be granted any further period for filling and carriage.		
3.4 Cylinders or bundles of cylinders having been granted a 15 year interval for periodic inspection shall only be fitted with valves designed and tested according to EN 849 or EN ISO 10297 as applicable at the time of manufacture (see also the table in 6.2.4.1). After a periodic inspection a new valve shall be fitted, except that valves which have been refurbished or inspected according to EN ISO 22434:2022 may be re-fitted.		
<b>4. Marking</b>		
Cylinders and bundles of cylinders having been granted a 15 year interval for periodic inspection in accordance with this paragraph shall have the date (year) of the next periodic inspection as required in section 5.2.1.6 (c) and at the same time additionally be marked clearly and legibly with "P15Y". This mark shall be removed if the cylinder or bundle of cylinders is no longer authorised for a 15 year interval for periodic inspection.		

*Cont'd on next page*

P200		PACKING INSTRUCTION (cont'd)										P200
Table 1: COMPRESSED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar <sup>e</sup>	Maximum working pressure, bar <sup>e</sup>	Special packing provisions	
1002	AIR, COMPRESSED	1A		X	X	X	X	10			ua, va	
1006	ARGON, COMPRESSED	1A		X	X	X	X	10			ua, va	
1016	CARBON MONOXIDE, COMPRESSED	1TF	3760	X	X	X	X	5			u	
1023	COAL GAS, COMPRESSED	1TF		X	X	X	X	5				
1045	FLUORINE, COMPRESSED	1TOC	185	X			X	5	200	30	a, k, n, o	
1046	HELIUM, COMPRESSED	1A		X	X	X	X	10			ua, va	
1049	HYDROGEN, COMPRESSED	1F		X	X	X	X	10			d, ua, va	
1056	KRYPTON, COMPRESSED	1A		X	X	X	X	10			ua, va	
1065	NEON, COMPRESSED	1A		X	X	X	X	10			ua, va	
1066	NITROGEN, COMPRESSED	1A		X	X	X	X	10			ua, va	
1071	OIL GAS, COMPRESSED	1TF		X	X	X	X	5				
1072	OXYGEN, COMPRESSED	1O		X	X	X	X	10			s, ua, va	
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	1T		X	X	X	X	5			z	
1660	NITRIC OXIDE, COMPRESSED	1TOC	115	X			X	5	225	33	k, o	
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	1TF	≤ 5000	X	X	X	X	5			z	
1954	COMPRESSED GAS, FLAMMABLE, N.O.S	1F		X	X	X	X	10			z, ua, va	
1955	COMPRESSED GAS, TOXIC, N.O.S.	1T	≤ 5000	X	X	X	X	5			z	
1956	COMPRESSED GAS, N.O.S.	1A		X	X	X	X	10			z, ua, va	
1957	DEUTERIUM, COMPRESSED	1F		X	X	X	X	10			d, ua, va	
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	1F		X	X	X	X	10			z, ua, va	
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	1F		X	X	X	X	10			ua, va	
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	1F		X	X	X	X	10			d, ua, va	
2190	OXYGEN DIFLUORIDE, COMPRESSED	1TOC	2.6	X			X	5	200	30	a, k, n, o	

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>e</sup> Where the entries are blank, the working pressure shall not exceed two thirds of the test pressure.

*Cont'd on next page*



P200 PACKING INSTRUCTION (cont'd) P200											
Table 1: COMPRESSED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar <sup>e</sup>	Maximum working pressure, bar <sup>e</sup>	Special packing provisions
3156	COMPRESSED GAS, OXIDIZING, N.O.S.	1O		X	X	X	X	10			z, ua, va
3303	COMPRESSED GAS, TOXIC, OXIDIZING, N.O.S.	1TO	≤ 5000	X	X	X	X	5			z
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	1TC	≤ 5000	X	X	X	X	5			z
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	1TFC	≤ 5000	X	X	X	X	5			z
3306	COMPRESSED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	1TOC	≤ 5000	X	X	X	X	5			z

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>e</sup> Where the entries are blank, the working pressure shall not exceed two thirds of the test pressure.

*Cont'd on next page*

P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1001	ACETYLENE, DISSOLVED	4F		X			X	10	60		c, p
1005	AMMONIA, ANHYDROUS	2TC	4000	X	X	X	X	5	29	0.54	b, ra
1008	BORON TRIFLUORIDE	2TC	864	X	X	X	X	5	225	0.715	a
									300	0.86	a
1009	BROMOTRIFLUORO-METHANE (REFRIGERANT GAS R 13B1)	2A		X	X	X	X	10	42	1.13	ra
									120	1.44	ra
									250	1.60	ra
1010	BUTADIENES, STABILIZED (1,2-butadiene) or	2F		X	X	X	X	10	10	0.59	ra
	BUTADIENES, STABILIZED (1,3-butadiene) or	2F		X	X	X	X	10	10	0.55	ra
	BUTADIENES AND HYDROCARBON MIXTURE, STABILIZED	2F		X	X	X	X	10	10	0.50	ra, v, z
1011	BUTANE	2F		X	X	X	X	10	10	0.52	ra, v
1012	BUTYLENE (Butylenes mixture) or	2F		X	X	X	X	10	10	0.50	ra, z
	BUTYLENE (1-Butylene) or	2F		X	X	X	X	10	10	0.53	ra
	BUTYLENE (cis-2-Butylene) or	2F		X	X	X	X	10	10	0.55	ra
	BUTYLENE (trans-2-Butylene)	2F		X	X	X	X	10	10	0.54	ra
1013	CARBON DIOXIDE	2A		X	X	X	X	10	190	0.68	ra, ua, va
									250	0.76	ra, ua, va
1017	CHLORINE	2TOC	293	X	X	X	X	5	22	1.25	a, ra
1018	CHLORODIFLUORO-METHANE (REFRIGERANT GAS R 22)	2A		X	X	X	X	10	27	1.03	ra
1020	CHLOROPENTAFLUORO-ETHANE (REFRIGERANT GAS R 115)	2A		X	X	X	X	10	25	1.05	ra
1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)	2A		X	X	X	X	10	11	1.20	ra
1022	CHLOROTRIFLUORO-METHANE (REFRIGERANT GAS R 13)	2A		X	X	X	X	10	100	0.83	ra
									120	0.90	ra
									190	1.04	ra
									250	1.11	ra
1026	CYANOGEN	2TF	350	X	X	X	X	5	100	0.70	ra, u
1027	CYCLOPROPANE	2F		X	X	X	X	10	18	0.55	ra
1028	DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R 12)	2A		X	X	X	X	10	16	1.15	ra

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

Cont'd on next page

P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1029	DICHLOROFLUORO-METHANE (REFRIGERANT GAS R 21)	2A		X	X	X	X	10	10	1.23	ra
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2F		X	X	X	X	10	16	0.79	ra
1032	DIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.59	b, ra
1033	DIMETHYL ETHER	2F		X	X	X	X	10	18	0.58	ra
1035	ETHANE	2F		X	X	X	X	10	95	0.25	ra
									120	0.30	ra
									300	0.40	ra
1036	ETHYLAMINE	2F		X	X	X	X	10	10	0.61	b, ra
1037	ETHYL CHLORIDE	2F		X	X	X	X	10	10	0.80	a, ra
1039	ETHYL METHYL ETHER	2F		X	X	X	X	10	10	0.64	ra
1040	ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50 °C	2TF	2900	X	X	X	X	5	15	0.78	l, ra
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9 % but not more than 87 % ethylene oxide	2F		X	X	X	X	10	190	0.66	ra
									250	0.75	ra
1043	FERTILIZER AMMONIATING SOLUTION with free ammonia	4A		X		X	X	5			b, z
1048	HYDROGEN BROMIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	60	1.51	a, d, ra
1050	HYDROGEN CHLORIDE, ANHYDROUS	2TC	2810	X	X	X	X	5	100	0.30	a, d, ra
									120	0.56	a, d, ra
									150	0.67	a, d, ra
									200	0.74	a, d, ra
1053	HYDROGEN SULPHIDE	2TF	712	X	X	X	X	5	48	0.67	d, ra, u
1055	ISOBUTYLENE	2F		X	X	X	X	10	10	0.52	ra
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2A		X	X	X	X	10			ra, z

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

Cont'd on next page

P200		PACKING INSTRUCTION (cont'd)									P200
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILIZED	2F		X	X	X	X	10			c, ra, z
	Propadiene with 1 % to 4 % methylacetylene	2F		X	X	X	X	10	22	0.52	c, ra
	Mixture P1	2F		X	X	X	X	10	30	0.49	c, ra
	Mixture P2	2F		X	X	X	X	10	24	0.47	c, ra
1061	METHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	13	0.58	b, ra
1062	METHYL BROMIDE with not more than 2 % chloropicrin	2T	850	X	X	X	X	5	10	1.51	a
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2F		X	X	X	X	10	17	0.81	a, ra
1064	METHYL MERCAPTAN	2TF	1350	X	X	X	X	5	10	0.78	d, ra, u
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2TOC	115	X		X	X	5	10	1.30	k
1069	NITROSYL CHLORIDE	2TC	35	X			X	5	13	1.10	k, ra
1070	NITROUS OXIDE	2O		X	X	X	X	10	180	0.68	ua, va
									225	0.74	ua, va
									250	0.75	ua, va
1075	PETROLEUM GASES, LIQUEFIED	2F		X	X	X	X	10			v, z
1076	PHOSGENE	2TC	5	X		X	X	5	20	1.23	a, k, ra
1077	PROPYLENE	2F		X	X	X	X	10	27	0.43	ra
1078	REFRIGERANT GAS, N.O.S.	2A		X	X	X	X	10			ra, z
	Mixture F1	2A		X	X	X	X	10	12	1.23	ra, z
	Mixture F2	2A		X	X	X	X	10	18	1.15	ra, z
	Mixture F3	2A		X	X	X	X	10	29	1.03	ra, z
1079	SULPHUR DIOXIDE	2TC	2520	X	X	X	X	5	12	1.23	ra
1080	SULPHUR HEXAFLUORIDE	2A		X	X	X	X	10	70	1.06	ra, ua, va
									140	1.34	ra, ua, va
									160	1.38	ra, ua, va
1081	TETRAFLUOROETHYLENE, STABILIZED	2F		X	X	X	X	10	200		m, o, ra
1082	TRIFLUOROCHLOROETHYLENE, STABILIZED (REFRIGERANT GAS R1113)	2TF	2000	X	X	X	X	5	19	1.13	ra, u
1083	TRIMETHYLAMINE, ANHYDROUS	2F		X	X	X	X	10	10	0.56	b, ra
1085	VINYL BROMIDE, STABILIZED	2F		X	X	X	X	10	10	1.37	a, ra

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

Cont'd on next page



P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1086	VINYL CHLORIDE, STABILIZED	2F		X	X	X	X	10	12	0.81	a, ra
1087	VINYL METHYL ETHER, STABILIZED	2F		X	X	X	X	10	10	0.67	ra
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2 % chloropicrin	2T	850	X	X	X	X	5	10	1.51	a
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2T	<sup>f</sup>	X	X	X	X	5	17	0.81	a
1589	CYANOGEN CHLORIDE, STABILIZED	2TC	80	X			X	5	20	1.03	k
1741	BORON TRICHLORIDE	2TC	2541	X	X	X	X	5	10	1.19	a, ra
1749	CHLORINE TRIFLUORIDE	2TOC	299	X	X	X	X	5	30	1.40	a
1858	HEXAFLUOROPROPYLENE (REFRIGERANT GAS R 1216)	2A		X	X	X	X	10	22	1.11	ra
1859	SILICON TETRAFLUORIDE	2TC	922	X	X	X	X	5	200	0.74	a
									300	1.10	a
1860	VINYL FLUORIDE, STABILIZED	2F		X	X	X	X	10	250	0.64	a, ra
1911	DIBORANE	2TF	80	X			X	5	250	0.07	d, k, o
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2F		X	X	X	X	10	17	0.81	a, ra
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9 % ethylene oxide	2A		X	X	X	X	10	190	0.66	ra
									250	0.75	ra
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2A		X	X	X	X	10	10	1.30	ra
1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)	2F		X	X	X	X	10	250	0.77	ra
1962	ETHYLENE	2F		X	X	X	X	10	225	0.34	
									300	0.38	

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

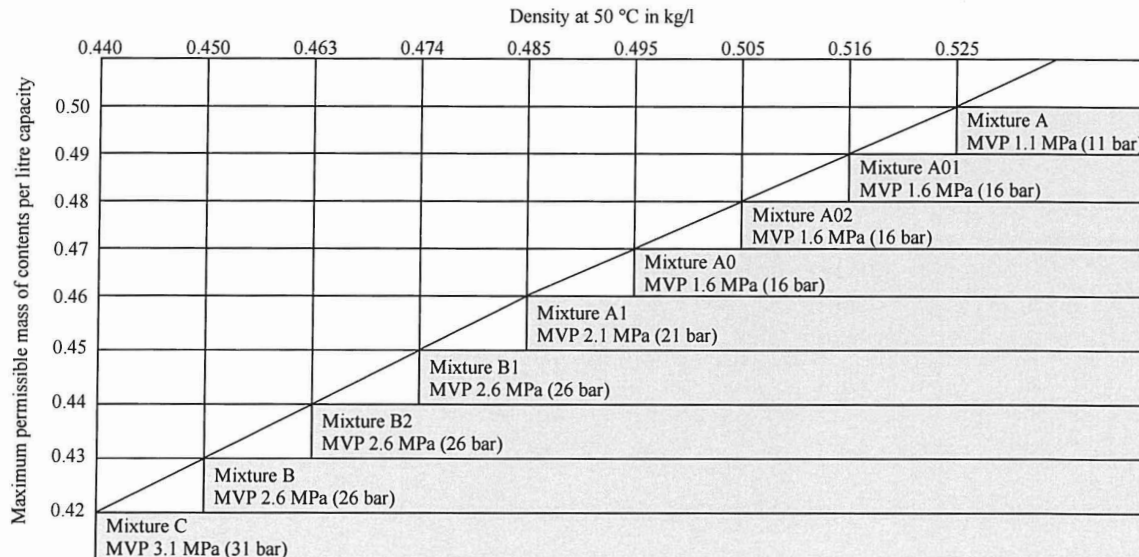
<sup>f</sup> Considered to be toxic. The LC<sub>50</sub> value still to be determined.

Cont'd on next page

P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio <sup>g</sup>	Special packing provisions
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.	2F		X	X	X	X	10			ra, ta, v, z
	Mixture A	2F						10	10	0.50	ra, ta, v, z
	Mixture A01	2F						10	15	0.49	ra, ta, v, z
	Mixture A02	2F						10	15	0.48	ra, ta, v, z
	Mixture A0	2F						10	15	0.47	ra, ta, v, z
	Mixture A1	2F						10	20	0.46	ra, ta, v, z
	Mixture B1	2F						10	25	0.45	ra, ta, v, z
	Mixture B2	2F						10	25	0.44	ra, ta, v, z
	Mixture B	2F						10	25	0.43	ra, ta, v, z
	Mixture C	2F						10	30	0.42	ra, ta, v, z
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2T		X	X	X	X	5			z
1968	INSECTICIDE GAS, N.O.S.	2A		X	X	X	X	10			ra, z
1969	ISOBUTANE	2F		X	X	X	X	10	10	0.49	ra, v

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>g</sup> For mixtures of UN No. 1965, the maximum permissible filling mass per litre of capacity is as follows:



**NOTE:** The graph above can be used to determine the correct filling ratios for the mixtures listed in 2.2.2.3.

Cont'd on next page

P200		PACKING INSTRUCTION (cont'd)									P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
1973	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE with fixed boiling point, with approximately 49 % chlorodifluoromethane (REFRIGERANT GAS R 502)	2A		X	X	X	X	10	31	1.01	ra	
1974	CHLORODIFLUOROBROMOMETHANE (REFRIGERANT GAS R 12B1)	2A		X	X	X	X	10	10	1.61	ra	
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2TOC	115	X		X	X	5			k, z	
1976	OCTAFLUOROCYCLOBUTANE (REFRIGERANT GAS RC 318)	2.A		X	X	X	X	10	11	1.32	ra	
1978	PROPANE	2F		X	X	X	X	10	23	0.43	ra, v	
1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)	2A		X	X	X	X	10	200	0.71		
									300	0.90		
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)	2A		X	X	X	X	10	10	1.18	ra	
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2A		X	X	X	X	10	190	0.88	ra	
									250	0.96	ra	
2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R 143a)	2F		X	X	X	X	10	35	0.73	ra	
2036	XENON	2A		X	X	X	X	10	130	1.28		
2044	2,2-DIMETHYLPROPANE	2F		X	X	X	X	10	10	0.53	ra	
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water,	4A										
	with more than 35 % but not more than 40 % ammonia	4A		X	X	X	X	5	10	0.80	b	
	with more than 40 % but not more than 50 % ammonia	4A		X	X	X	X	5	12	0.77	b	
2188	ARSINE	2TF	178	X			X	5	42	1.10	d, k	
2189	DICHLOROSILANE	2TFC	314	X	X	X	X	5	10	0.90	a	
									200	1.08	a	
2191	SULPHURY FLUORIDE	2T	3020	X	X	X	X	5	50	1.10	u	
2192	GERMANE <sup>h</sup>	2TF	620	X	X	X	X	5	250	0.064	d, ra, r, q	

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>h</sup> Considered as pyrophoric.

Cont'd on next page



P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)	2A		X	X	X	X	10	200	1.13	
2194	SELENIUM HEXAFLUORIDE	2TC	50	X			X	5	36	1.46	k, ra
2195	TELLURIUM HEXAFLUORIDE	2TC	25	X			X	5	20	1.00	k, ra
2196	TUNGSTEN HEXAFLUORIDE	2TC	218	X	X	X	X	5	10	3.08	a, ra
2197	HYDROGEN IODIDE, ANHYDROUS	2TC	2860	X	X	X	X	5	23	2.25	a, d, ra
2198	PHOSPHORUS PENTAFLUORIDE	2TC	261	X	X	X	X	5	200	0.90	
									300	1.25	
2199	PHOSPHINE <sup>h</sup>	2TF	20	X			X	5	225	0.30	d, k, q, ra
									250	0.45	d, k, q, ra
2200	PROPADIENE, STABILIZED	2F		X	X	X	X	10	22	0.50	ra
2202	HYDROGEN SELENIDE, ANHYDROUS	2TF	51	X			X	5	31	1.60	k
2203	SILANE <sup>h</sup>	2F		X	X	X	X	10	225	0.32	q
									250	0.36	q
2204	CARBONYL SULPHIDE	2TF	1700	X	X	X	X	5	30	0.87	ra, u
2417	CARBONYL FLUORIDE	2TC	360	X	X	X	X	5	200	0.47	
									300	0.70	
2418	SULPHUR TETRAFLUORIDE	2TC	40	X			X	5	30	0.91	a, k, ra
2419	BROMOTRIFLUORO-ETHYLENE	2F		X	X	X	X	10	10	1.19	ra
2420	HEXAFLUOROACETONE	2TC	470	X	X	X	X	5	22	1.08	ra
2421	NITROGEN TRIOXIDE	2TOC	CARRIAGE PROHIBITED								
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)	2A		X	X	X	X	10	12	1.34	ra
2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R 218)	2A		X	X	X	X	10	25	1.04	ra
2451	NITROGEN TRIFLUORIDE	2O		X	X	X	X	10	200	0.50	
2452	ETHYLACETYLENE, STABILIZED	2F		X	X	X	X	10	10	0.57	c, ra
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2F		X	X	X	X	10	30	0.57	ra
2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)	2F		X	X	X	X	10	300	0.63	ra
2455	METHYL NITRITE	2A	CARRIAGE PROHIBITED								
2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R 142b)	2F		X	X	X	X	10	10	0.99	ra
2534	METHYLCHLOROSILANE	2TFC	2810	X	X	X	X	5			ra, z
2548	CHLORINE PENTAFLUORIDE	2TOC	122	X			X	5	13	1.49	a, k

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>h</sup> Considered as pyrophoric.

Cont'd on next page



P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
2599	CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60 % chlorotrifluoromethane (REFRIGERANT GAS R 503)	2A		X	X	X	X	10	31	0.12	ra
									42	0.17	ra
									100	0.64	ra
2601	CYCLOBUTANE	2F		X	X	X	X	10	10	0.63	ra
2602	DICHLORODIFLUOROMETHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74 % dichlorodifluoromethane (REFRIGERANT GAS R 500)	2A		X	X	X	X	10	22	1.01	ra
2676	STIBINE	2TF	178	X			X	5	200	0.49	k, ra, r
2901	BROMINE CHLORIDE	2TOC	290	X	X	X	X	5	10	1.50	a
3057	TRIFLUOROACETYL CHLORIDE	2TC	10	X		X	X	5	17	1.17	k, ra
3070	ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with not more than 12,5 % ethylene oxide	2A		X	X	X	X	10	18	1.09	ra
3083	PERCHLORYL FLUORIDE	2TO	770	X	X	X	X	5	33	1.21	u
3153	PERFLUORO(METHYL VINYL ETHER)	2F		X	X	X	X	10	20	0.75	ra
3154	PERFLUORO(ETHYL VINYL ETHER)	2F		X	X	X	X	10	10	0.98	ra
3157	LIQUEFIED GAS, OXIDIZING, N.O.S.	2O		X	X	X	X	10			z
3159	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2A		X	X	X	X	10	18	1.05	ra
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2TF	≤ 5000	X	X	X	X	5			ra, z
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2F		X	X	X	X	10			ra, z
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2T	≤ 5000	X	X	X	X	5			z
3163	LIQUEFIED GAS, N.O.S.	2A		X	X	X	X	10			ra, z
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2A		X	X	X	X	10	49	0.95	ra
									35	0.87	ra
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2F		X	X	X	X	10	48	0.78	ra

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

Cont'd on next page

P200		PACKING INSTRUCTION (cont'd)									P200	
Table 2: LIQUEFIED GASES AND DISSOLVED GASES												
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions	
3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	2A		X	X	X	X	10	13	1.21	ra	
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUOROETHANE MIXTURE with not more than 8.8 % ethylene oxide	2A		X	X	X	X	10	10	1.16	ra	
3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9 % ethylene oxide	2A		X	X	X	X	10	26	1.02	ra	
3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6 % ethylene oxide	2A		X	X	X	X	10	17	1.03	ra	
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87 % ethylene oxide	2TF	More than 2900	X	X	X	X	5	28	0.73	ra	
3307	LIQUEFIED GAS, TOXIC, OXIDIZING, N.O.S.	2TO	≤ 5000	X	X	X	X	5			z	
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2TC	≤ 5000	X	X	X	X	5			ra, z	
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2TFC	≤ 5000	X	X	X	X	5			ra, z	
3310	LIQUEFIED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2TOC	≤ 5000	X	X	X	X	5			z	
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50 % ammonia	4TC		X	X	X	X	5			b	
3337	REFRIGERANT GAS R 404A (Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44 % pentafluoroethane and 52 % 1,1,1-trifluoroethane)	2A		X	X	X	X	10	36	0.82	ra	
3338	REFRIGERANT GAS R 407A (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20 % difluoromethane and 40 % pentafluoroethane)	2A		X	X	X	X	10	32	0.94	ra	

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

Cont'd on next page

P200 PACKING INSTRUCTION (cont'd) P200											
Table 2: LIQUEFIED GASES AND DISSOLVED GASES											
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
3339	REFRIGERANT GAS R 407B (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10 % difluoromethane and 70 % pentafluoroethane)	2A		X	X	X	X	10	33	0.93	ra
3340	REFRIGERANT GAS R 407C (Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23 % difluoromethane and 25 % pentafluoroethane)	2A		X	X	X	X	10	30	0.95	ra
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S	2F		X	X	X	X	10			ra, z
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2TF		X	X	X	X	5			ra, z
3374	ACETYLENE, SOLVENT FREE	2F		X			X	5	60		c, p
3553	DISILANE <sup>h</sup>	2F		X	X	X	X	10	225	0.39	q

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>h</sup> Considered as pyrophoric.

Cont'd on next page

P200		PACKING INSTRUCTION (cont'd)										P200
Table 3: SUBSTANCES NOT IN CLASS 2												
UN No.	Name and description	Class	Classification Code	LC <sub>50</sub> ml/m <sup>3</sup>	Cylinders	Tubes	Pressure drums	Bundles of cylinders	Test period, years <sup>d</sup>	Test pressure, bar	Filling ratio	Special packing provisions
1051	HYDROGEN CYANIDE, STABILIZED containing less than 3 % water	6.1	TF1	40	X			X	5	100	0.55	k
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	CT1	1307	X		X	X	5	10	0.84	a, ab, ac
1745	BROMINE PENTAFLUORIDE	5.1	OTC	25	X		X	X	5	10	i	k, ab, ad
1746	BROMINE TRIFLUORIDE	5.1	OTC	50	X		X	X	5	10	i	k, ab, ad
2495	IODINE PENTAFLUORIDE	5.1	OTC	120	X		X	X	5	10	i	k, ab, ad

<sup>d</sup> Not applicable for pressure receptacles made of composite materials.

<sup>i</sup> A minimum ullage of 8 % by volume is required.

P201	PACKING INSTRUCTION	P201
This instruction applies to UN Nos. 3167, 3168 and 3169.		
The following packagings are authorized:		
(1) Cylinders and gas receptacles conforming to the construction, testing and filling requirements approved by the competent authority.		
(2) The following combination packagings provided that the general provisions of 4.1.1 and 4.1.3 are met:		
Outer packagings:		
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).		
Inner packagings:		
(a) For non-toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 5 litres per package;		
(b) For toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 1 litre per package.		
Packagings shall conform to the packing group III performance level.		

P202	PACKING INSTRUCTION	P202
(Reserved)		



P203	PACKING INSTRUCTION	P203
This instruction applies to Class 2 refrigerated liquefied gases.		
<p><b>Requirements for closed cryogenic receptacles:</b></p> <ol style="list-style-type: none"> <li>(1) The special packing provisions of 4.1.6 shall be met.</li> <li>(2) The requirements of Chapter 6.2 shall be met.</li> <li>(3) The closed cryogenic receptacles shall be so insulated that they do not become coated with frost.</li> <li>(4) Test pressure <ul style="list-style-type: none"> <li>Refrigerated liquids shall be filled in closed cryogenic receptacles with the following minimum test pressures: <ol style="list-style-type: none"> <li>(a) For closed cryogenic receptacles with vacuum insulation, the test pressure shall not be less than 1.3 times the sum of the maximum internal pressure of the filled receptacle, including during filling and discharge, plus 100 kPa (1 bar);</li> <li>(b) For other closed cryogenic receptacles, the test pressure shall be not less than 1.3 times the maximum internal pressure of the filled receptacle, taking into account the pressure developed during filling and discharge.</li> </ol> </li> </ul> </li> <li>(5) Filling <ul style="list-style-type: none"> <li>For non-flammable, non-toxic refrigerated liquefied gases (classification codes 3A and 3O) the volume of liquid phase at the filling temperature and at a pressure of 100 kPa (1 bar) shall not exceed 98 % of the water capacity of the pressure receptacle.</li> <li>For flammable refrigerated liquefied gases (classification code 3F) the gas filled into the receptacle shall remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the opening pressure of the relief valve, the volume of the liquid phase would reach 98 % of the water capacity at that temperature.</li> </ul> </li> <li>(6) Pressure-relief devices <ul style="list-style-type: none"> <li>Closed cryogenic receptacles shall be fitted with at least one pressure-relief device.</li> </ul> </li> <li>(7) Compatibility <ul style="list-style-type: none"> <li>Materials used to ensure the leakproofness of the joints or for the maintenance of the closures shall be compatible with the contents. In the case of receptacles intended for the carriage of oxidizing gases (classification code 3O), these materials shall not react with these gases in a dangerous manner.</li> </ul> </li> <li>(8) Periodic inspection <ol style="list-style-type: none"> <li>(a) The periodic inspection and test frequencies of pressure relief valves in accordance with 6.2.1.6.3 shall not exceed five years.</li> <li>(b) The periodic inspection and test frequencies of non-UN closed cryogenic receptacles in accordance with 6.2.3.5.2 shall not exceed 10 years.</li> </ol> </li> </ol> <p><b>Requirements for open cryogenic receptacles:</b></p> <p>Only the following non oxidizing refrigerated liquefied gases of classification code 3A may be carried in open cryogenic receptacles: UN Nos. 1913, 1951, 1963, 1970, 1977, 2591, 3136 and 3158. For these gases, when used as a coolant, the requirements of 5.5.3 shall apply.</p> <p>Open cryogenic receptacles shall be constructed to meet the following requirements:</p> <ol style="list-style-type: none"> <li>(1) The receptacles shall be designed, manufactured, tested and equipped in such a way as to withstand all conditions, including fatigue, to which they will be subjected during their normal use and during normal conditions of carriage.</li> <li>(2) The capacity shall be not more than 450 litres.</li> <li>(3) The receptacle shall have a double wall construction with the space between the inner and outer wall being evacuated (vacuum insulation). The insulation shall prevent the formation of hoar frost on the exterior of the receptacle.</li> <li>(4) The materials of construction shall have suitable mechanical properties at the service temperature.</li> </ol>		

*Cont'd on next page*

P203	PACKING INSTRUCTION ( <i>cont'd</i> )	P203
<b>Requirements for open cryogenic receptacles (<i>cont'd</i>):</b>		
<p>(5) Materials which are in direct contact with the dangerous goods shall not be affected or weakened by the dangerous goods intended to be carried and shall not cause a dangerous effect, e.g. catalysing a reaction or reacting with the dangerous goods.</p> <p>(6) Receptacles of glass double wall construction shall have an outer packaging with suitable cushioning or absorbent materials which withstand the pressures and impacts liable to occur under normal conditions of carriage.</p> <p>(7) The receptacle shall be designed to remain in an upright position during carriage, e.g. have a base whose smaller horizontal dimension is greater than the height of the centre of gravity when filled to capacity or be mounted on gimbals.</p> <p>(8) The openings of the receptacles shall be fitted with devices allowing gases to escape, preventing any splashing out of liquid, and so configured that they remain in place during carriage.</p> <p>(9) Open cryogenic receptacles shall bear the following marks permanently affixed e.g. by stamping, engraving or etching:</p> <ul style="list-style-type: none"> <li>(a) The manufacturer's name and address;</li> <li>(b) The model number or name;</li> <li>(c) The serial or batch number;</li> <li>(d) The UN number and proper shipping name of gases for which the receptacle is intended;</li> <li>(e) The capacity of the receptacle in litres.</li> </ul>		

P204	PACKING INSTRUCTION	P204
<i>(Deleted)</i>		

P205	PACKING INSTRUCTION	P205
This instruction applies to UN No. 3468.		
<p>(1) For metal hydride storage systems, the special packing provisions of 4.1.6 shall be met.</p> <p>(2) Only pressure receptacles not exceeding 150 litres in water capacity and having a maximum developed pressure not exceeding 25 MPa are covered by this packing instruction.</p> <p>(3) Metal hydride storage systems meeting the applicable requirements for the construction and testing of pressure receptacles containing gas of Chapter 6.2 are authorised for the carriage of hydrogen only.</p> <p>(4) When steel pressure receptacles or composite pressure receptacles with steel liners are used, only those bearing the "H" mark, in accordance with 6.2.2.9.2 (j) shall be used.</p> <p>(5) Metal hydride storage systems shall meet the service conditions, design criteria, rated capacity, type tests, batch tests, routine tests, test pressure, rated charging pressure and provisions for pressure relief devices for transportable metal hydride storage systems specified in ISO 16111:2008 or ISO 16111:2018 (Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride) and their conformity and approval shall be assessed in accordance with 6.2.2.5.</p> <p>(6) Metal hydride storage systems shall be filled with hydrogen at a pressure not exceeding the rated charging pressure shown in the permanent mark on the system as specified by ISO 16111:2008 or ISO 16111:2018.</p> <p>(7) The periodic test requirements for a metal hydride storage system shall be in accordance with ISO 16111:2008 or ISO 16111:2018 and carried out in accordance with 6.2.2.6, and the interval between periodic inspections shall not exceed five years. See 6.2.2.4 to determine which standard is applicable at the time of periodic inspection and test.</p>		

P206	PACKING INSTRUCTION	P206
This instruction applies to UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505.		
<p>Unless otherwise indicated in ADR, cylinders and pressure drums conforming to the applicable requirements of Chapter 6.2 are authorized.</p> <p>(1) The special packing provisions of 4.1.6 shall be met.</p> <p>(2) The maximum test period for periodic inspection shall be 5 years.</p> <p>(3) Cylinders and pressure drums shall be so filled that at 50 °C the non-gaseous phase does not exceed 95 % of their water capacity and they are not completely filled at 60 °C. When filled, the internal pressure at 65 °C shall not exceed the test pressure of the cylinders and pressure drums. The vapour pressures and volumetric expansion of all substances in the cylinders and pressure drums shall be taken into account.</p> <p>For liquids charged with a compressed gas both components – the liquid and the compressed gas – have to be taken into consideration in the calculation of the internal pressure in the pressure receptacle. When experimental data is not available, the following steps shall be carried out:</p> <p>(a) Calculation of the vapour pressure of the liquid and of the partial pressure of the compressed gas at 15 °C (filling temperature);</p> <p>(b) Calculation of the volumetric expansion of the liquid phase resulting from the heating from 15 °C to 65 °C and calculation of the remaining volume for the gaseous phase;</p> <p>(c) Calculation of the partial pressure of the compressed gas at 65 °C considering the volumetric expansion of the liquid phase;</p> <p><i>NOTE: The compressibility factor of the compressed gas at 15 °C and 65 °C shall be considered.</i></p> <p>(d) Calculation of the vapour pressure of the liquid at 65 °C;</p> <p>(e) The total pressure is the sum of the vapour pressure of the liquid and the partial pressure of the compressed gas at 65 °C;</p> <p>(f) Consideration of the solubility of the compressed gas at 65 °C in the liquid phase.</p> <p>The test pressure of the cylinders or pressure drums shall not be less than the calculated total pressure minus 100 kPa (1 bar).</p> <p>If the solubility of the compressed gas in the liquid phase is not known for the calculation, the test pressure can be calculated without taking the gas solubility (sub-paragraph (f)) into account.</p> <p>(4) The minimum test pressure shall be in accordance with packing instruction P200 for the propellant but shall not be less than 20 bar.</p>		
<p><b>Additional requirement:</b></p> <p>Cylinders and pressure drums shall not be offered for carriage when connected with spray application equipment such as a hose and wand assembly.</p>		
<p><b>Special packing provisions:</b></p> <p><b>PP89</b> For UN Nos. 3501, 3502, 3503, 3504 and 3505, notwithstanding 4.1.6.9 (b), non-refillable cylinders used may have a water capacity in litres not exceeding 1 000 litres divided by the test pressure expressed in bars provided capacity and pressure restrictions of the construction standard comply with clause 1 of ISO 11118:2015 + Amd 1:2019, which limits the maximum capacity to 50 litres.</p> <p><b>PP97</b> For fire extinguishing agents assigned to UN No. 3500 the maximum test period for periodic inspection shall be 10 years. They may be carried in tubes of a maximum water capacity of 450 l conforming to the applicable requirements of Chapter 6.2.</p>		



P207	PACKING INSTRUCTION	P207
This instruction applies to UN No. 1950.		
<p>The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:</p> <p>(a) Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2). Packagings shall conform to the packing group II performance level.</p> <p>(b) Rigid outer packagings with a maximum net mass as follows: Fibreboard: 55 kg Other than fibreboard: 125 kg The provisions of 4.1.1.3 need not be met.</p> <p>The packagings shall be designed and constructed to prevent excessive movement of the aerosols and inadvertent discharge during normal conditions of carriage.</p>		
<b>Special packing provision:</b>		
<p><b>PP87</b> For UN No. 1950 waste aerosols carried in accordance with special provision 327, the packagings shall have a means of retaining any free liquid that might escape during carriage, e.g. absorbent material. The packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.</p>		
<b>Special packing provision specific to RID and ADR:</b>		
<p><b>RR6</b> For UN No. 1950 in the case of carriage by full load, metal articles may also be packed as follows: The articles shall be grouped together in units on trays and held in position with an appropriate plastics cover; these units shall be stacked and suitably secured on pallets.</p>		



P208	PACKING INSTRUCTION	P208
This instruction applies to Class 2 adsorbed gases.		
<p>(1) The following packagings are authorized provided the general packing requirements of 4.1.6.1 are met: Cylinders specified in Chapter 6.2 and in accordance with ISO 11513:2011, ISO 11513:2019, ISO 9809-1:2010 or ISO 9809-1:2019.</p> <p>(2) The pressure of each filled cylinder shall be less than 101.3 kPa at 20 °C and less than 300 kPa at 50 °C.</p> <p>(3) The minimum test pressure of the cylinder shall be 21 bar.</p> <p>(4) The minimum burst pressure of the cylinder shall be 94.5 bar.</p> <p>(5) The internal pressure at 65 °C of the filled cylinder shall not exceed the test pressure of the cylinder.</p> <p>(6) The adsorbent material shall be compatible with the cylinder and shall not form harmful or dangerous compounds with the gas to be adsorbed. The gas in combination with the adsorbent material shall not affect or weaken the cylinder or cause a dangerous reaction (e.g. a catalyzing reaction).</p> <p>(7) The quality of the adsorbent material shall be verified at the time of each fill to ensure that the pressure and chemical stability requirements of this packing instruction are met each time an adsorbed gas package is offered for carriage.</p> <p>(8) The adsorbent material shall not meet the criteria of any of the classes in ADR.</p> <p>(9) Requirements for cylinders and closures containing toxic gases with an LC<sub>50</sub> less than or equal to 200 ml/m<sup>3</sup> (ppm) (see Table 1) shall be as follows:</p> <p>(a) Valve outlets shall be fitted with pressure retaining gas-tight plugs or caps having threads matching those of the valve outlets.</p> <p>(b) Each valve shall either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.</p> <p>(c) Each cylinder and closure shall be tested for leakage after filling.</p> <p>(d) Each valve shall be capable of withstanding the test pressure of the cylinder and be directly connected to the cylinder by either a taper-thread or other means which meets the requirements of ISO 10692-2:2001.</p> <p>(e) Cylinders and valves shall not be fitted with a pressure relief device.</p> <p>(10) Valve outlets for cylinders containing pyrophoric gases shall be fitted with gas-tight plugs or caps having threads matching those of the valve outlets.</p> <p>(11) The filling procedure shall be in accordance with Annex A of ISO 11513:2011 (applicable until 31 December 2024) or Annex A of ISO 11513:2019.</p> <p>(12) The maximum period for periodic inspections shall be 5 years.</p> <p>(13) Special packing provisions that are specific to a substance (see Table 1).</p> <p><i>Material compatibility</i></p> <p>a: Aluminium alloy cylinders shall not be used.</p> <p>d: When steel cylinders are used, only those bearing the "H" mark in accordance with 6.2.2.7.4 (p) are permitted.</p> <p><i>Gas specific provisions</i></p> <p>r: The filling of this gas shall be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the cylinder.</p> <p><i>Material compatibility for n.o.s. adsorbed gas entries</i></p> <p>z: The construction materials of the cylinders and their accessories shall be compatible with the contents and shall not react to form harmful or dangerous compounds therewith.</p>		

Cont'd on next page

P208 PACKING INSTRUCTION (cont'd) P208				
Table 1: ADSORBED GASES				
UN No.	Name and description	Classification code	LC <sub>50</sub> ml/m <sup>3</sup>	Special packing provisions
3510	ADSORBED GAS, FLAMMABLE, N.O.S.	9F		z
3511	ADSORBED GAS, N.O.S.	9A		z
3512	ADSORBED GAS, TOXIC, N.O.S.	9T	≤ 5000	z
3513	ADSORBED GAS, OXIDIZING, N.O.S.	9O		z
3514	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	9TF	≤ 5000	z
3515	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	9TO	≤ 5000	z
3516	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	9TC	≤ 5000	z
3517	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	9TFC	≤ 5000	z
3518	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	9TOC	≤ 5000	z
3519	BORON TRIFLUORIDE, ADSORBED	9TC	387	a
3520	CHLORINE, ADSORBED	9TOC	293	a
3521	SILICON TETRAFLUORIDE, ADSORBED	9TC	450	a
3522	ARSINE, ADSORBED	9TF	20	d
3523	GERMANE, ADSORBED	9TF	620	d, r
3524	PHOSPHORUS PENTAFLUORIDE, ADSORBED	9TC	190	
3525	PHOSPHINE, ADSORBED	9TF	20	d
3526	HYDROGEN SELENIDE, ADSORBED	9TF	2	

P209	PACKING INSTRUCTION	P209
This packing instruction applies to UN No. 3150 devices, small, hydrocarbon gas powered or hydrocarbon gas refills for small devices.		
(1) The special packing provisions of 4.1.6 when applicable shall be met. (2) The articles shall comply with the provisions of the country in which they were filled. (3) The devices and refills shall be packed in outer packagings conforming to 6.1.4 tested and approved in accordance with Chapter 6.1 for packing group II.		

P300	PACKING INSTRUCTION	P300
This instruction applies to UN No. 3064.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met: Combination packagings consisting of inner metal cans of not more than 1 litre capacity each and outer wooden boxes (4C1, 4C2, 4D or 4F) containing not more than 5 litres of solution.		
<b>Additional requirements:</b> 1. Metal cans shall be completely surrounded with absorbent cushioning material. 2. Wooden boxes shall be completely lined with suitable material impervious to water and nitroglycerin.		

P301	PACKING INSTRUCTION	P301
This instruction applies to UN No. 3165.		
The following packagings are authorized, provided that the general provisions of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.5, 4.1.1.6 and 4.1.3 are met:		
<p>(1) Aluminium pressure receptacle made from tubing and having welded heads.</p> <p>Primary containment of the fuel within this receptacle shall consist of a welded aluminium bladder having a maximum internal volume of 46 litres.</p> <p>The outer receptacle shall have a minimum design gauge pressure of 1 275 kPa and a minimum burst gauge pressure of 2 755 kPa.</p> <p>Each receptacle shall be leak checked during manufacture and before dispatch and shall be found leakproof.</p> <p>The complete inner unit shall be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings.</p> <p>Maximum quantity of fuel per primary containment and package is 42 litres.</p>		
<p>(2) Aluminium pressure receptacle.</p> <p>Primary containment of the fuel within this receptacle shall consist of a welded vapour tight fuel compartment with an elastomeric bladder having a maximum internal volume of 46 litres.</p> <p>The pressure receptacle shall have a minimum design gauge pressure of 2 860 kPa and a minimum burst gauge pressure of 5 170 kPa.</p> <p>Each receptacle shall be leak checked during manufacture and before dispatch and shall be securely packed in non-combustible cushioning material such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings.</p> <p>Maximum quantity of fuel per primary containment and package is 42 litres.</p>		

P302	PACKING INSTRUCTION	P302
This instruction applies to UN No. 3269.		
The following combination packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
Outer packagings:		
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);		
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);		
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2);		
Inner packagings:		
The activator (organic peroxide) shall have a maximum quantity of 125 ml per inner packaging if liquid, and 500 g per inner packaging if solid.		
The base material and the activator shall be each separately packed in inner packagings.		
The components may be placed in the same outer packaging provided that they will not interact dangerously in the event of a leakage.		
Packagings shall conform to the packing group II or III performance level according to the criteria for Class 3 applied to the base material.		

P303	PACKING INSTRUCTION	P303
This instruction applies to UN No. 3555.		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 as well as 4.1.5.12 are met:		
Plastics drum non-removable head (1H1) of maximum capacity 250 l.		
<b>Special packing provision:</b>		
PP26 For UN No. 3555, packagings shall be lead free.		



P400	PACKING INSTRUCTION	P400
<p>The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:</p> <ol style="list-style-type: none"> <li>(1) Pressure receptacles, provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and shall be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1 MPa (10 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar);</li> <li>(2) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F or 4G), drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1D or 1G) or jerricans (3A1, 3A2, 3B1 or 3B2) enclosing hermetically sealed metal cans with inner packagings of glass or metal, with a capacity of not more than 1 litre each, having closures with gaskets. Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage. Inner packagings shall be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Inner packagings shall not be filled to more than 90 % of their capacity. Outer packagings shall have a maximum net mass of 125 kg;</li> <li>(3) Steel, aluminium or metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), jerricans (3A1, 3A2, 3B1 or 3B2) or boxes (4A, 4B or 4N) with a maximum net mass of 150 kg each with hermetically sealed inner metal cans not more than 4 litre capacity each, with closures fitted with gaskets. Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during carriage. Inner packagings shall be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Each layer of inner packagings shall be separated by a dividing partition in addition to cushioning material. Inner packagings shall not be filled to more than 90 % of their capacity.</li> </ol>		
<p><b>Special packing provision:</b></p> <p><b>PP86</b> For UN Nos. 3392 and 3394, air shall be eliminated from the vapour space by nitrogen or other means.</p>		

P401	PACKING INSTRUCTION	P401
<p>The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:</p> <ol style="list-style-type: none"> <li>(1) Pressure receptacles, provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6 MPa (6 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar);</li> <li>(2) Combination packagings: <ul style="list-style-type: none"> <li>Outer packagings: <ul style="list-style-type: none"> <li>Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);</li> <li>Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);</li> <li>Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).</li> </ul> </li> <li>Inner packagings: <ul style="list-style-type: none"> <li>Glass, metal or plastics which have threaded closures with a maximum capacity of 1 litre.</li> </ul> </li> </ul> <p>Each inner packaging shall be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents.</p> <p>The maximum net mass per outer packaging shall not exceed 30 kg.</p> </li> </ol>		
<p><b>Special packing provision specific to RID and ADR:</b></p> <p><b>RR7</b> For UN Nos. 1183, 1242, 1295 and 2988, the pressure receptacles shall however be subjected to the tests every five years.</p>		



P402	PACKING INSTRUCTION	P402
<p>The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:</p> <p>(1) Pressure receptacles, provided that the general provisions of 4.1.3.6 are met. They shall be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6 MPa (6 bar, gauge pressure). During carriage, the liquid shall be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar);</p> <p>(2) Combination packagings:</p> <p style="padding-left: 40px;">Outer packagings:</p> <p style="padding-left: 80px;">Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);</p> <p style="padding-left: 80px;">Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);</p> <p style="padding-left: 80px;">Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).</p> <p style="padding-left: 40px;">Inner packagings with a maximum net mass as follows:</p> <p style="padding-left: 80px;">Glass: 10 kg</p> <p style="padding-left: 80px;">Metal or plastics: 15 kg</p> <p>Each inner packaging shall be fitted with threaded closures.</p> <p>Each inner packaging shall be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents.</p> <p>The maximum net mass per outer packaging shall not exceed 125 kg.</p> <p>(3) Steel drums (1A1) with a maximum capacity of 250 litres;</p> <p>(4) Composite packagings consisting of a plastics receptacle with outer steel drum or aluminium (6HA1 or 6HB1) with a maximum capacity of 250 litres.</p>		
<p><b>Special packing provisions specific to RID and ADR:</b></p> <p><b>RR4</b> For UN No. 3130, the openings of receptacles shall be tightly closed by means of two devices in series, one of which shall be screwed or secured in an equivalent manner.</p> <p><b>RR7</b> For UN No. 3129, the pressure receptacles shall however be subjected to the tests every five years.</p> <p><b>RR8</b> For UN Nos. 1389, 1391, 1411, 1421, 1928, 3129, 3130, 3148 and 3482, the pressure receptacles shall however be subjected to an initial test and to periodic tests at a pressure of not less than 1 MPa (10 bar).</p>		

<b>P403 PACKING INSTRUCTION P403</b>		
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
<b>Combination packagings</b>		
<b>Inner packagings</b>	<b>Outer packagings</b>	<b>Maximum net mass</b>
Glass 2 kg Plastics 15 kg Metal 20 kg Inner packagings shall be hermetically sealed (e.g. by taping or by threaded closures)	<b>Drums</b> steel (1A1, 1A2) 400 kg aluminium (1B1, 1B2) 400 kg other metal (1N1, 1N2) 400 kg plastics (1H1, 1H2) 400 kg plywood (1D) 400 kg fibre (1G) 400 kg <b>Boxes</b> steel (4A) 400 kg aluminium (4B) 400 kg other metal (4N) 400 kg natural wood (4C1) 250 kg natural wood with sift proof walls (4C2) 250 kg plywood (4D) 250 kg reconstituted wood (4F) 125 kg fibreboard (4G) 125 kg expanded plastics (4H1) 60 kg solid plastics (4H2) 250 kg <b>Jerricans</b> steel (3A1, 3A2) 120 kg aluminium (3B1, 3B2) 120 kg plastics (3H1, 3H2) 120 kg	
<b>Single packagings</b>		<b>Maximum net mass</b>
<b>Drums</b> steel (1A1, 1A2) 250 kg aluminium (1B1, 1B2) 250 kg metal, other than steel or aluminium (1N1, 1N2) 250 kg plastics (1H1, 1H2) 250 kg <b>Jerricans</b> steel (3A1, 3A2) 120 kg aluminium (3B1, 3B2) 120 kg plastics (3H1, 3H2) 120 kg <b>Composite packagings</b> plastics receptacle with outer steel or aluminium drums (6HA1 or 6HB1) 250 kg plastics receptacle with outer fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1) 75 kg plastics receptacle with outer steel or aluminium crate or box or with outer wooden, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2) 75 kg		
<b>Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.</b>		
<b>Additional requirement:</b> Packagings shall be hermetically sealed.		
<b>Special packing provision:</b>		
<b>PP83 Deleted</b>		