



packgen

### **Regulatory Information**

The UN Markings for the Cougar Container are 11HG2W. Please also find the attached CFR 49 Part 178.707. Within that document it describes the “Standards for Composite IBC Containers”, and says to complete the marking code 11HZ2 the Z must be replaced with the capital letter to indicate the material used for the outer packaging as in accordance with 178.702 (also attached). The “G” represents a fiberboard outer packaging. The “H” represents a plastic inner packaging and the “11” represents a rigid package. The “W” of the 11HG2W is part of the Competent Authority Granted by the US DOT. The Competent Authority is also attached and in part 5d it states that each package prepared under the provisions of this approval must be plainly marked with the approval number and the letter “W” following the package identification code of UN11HG2. The US DOT found that our container was unique when compared to the traditional composite containers and wanted to designate that variance with the “W”. Also within this Competent Authority is where it is stated that Solid Hazardous Materials that are authorized to be transported in UN11HG Fiberboard Composite IBC’s in accordance with IB Codes (IBC Codes) IB6, IB7 & IB8 in the Hazardous Material Table may be transported in packages authorized under the terms of this approval. According to the Hazardous Materials Table (page 130), Self Heating Solids, Inorganic, n.o.s, (PG II & PG III) can be transported in IBC packages that are coded as IB6 or IB8.

contents and remain effective throughout the life of the IBC body. Where use is made of carbon black, pigments or inhibitors, other than those used in the manufacture of the tested design type, retesting may be omitted if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

(2) Additives may be included in the composition of the plastic material to improve the resistance to aging or to serve other purposes, provided they do not adversely affect the physical or chemical properties of the material of construction.

(3) No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of rigid plastic IBCs.

(4) Rigid plastic IBCs intended for the transportation of liquids must be capable of releasing a sufficient amount of vapor to prevent the body of the IBC from rupturing if it is subjected to an internal pressure in excess of that for which it was hydraulically tested. This may be achieved by spring-loaded or non-reclosing pressure relief devices or by other means of construction.

[Amdt. 178-103, 59 FR 38068, July 26, 1994, as amended at 66 FR 45386, 45387, Aug. 28, 2001]

#### § 178.707 Standards for composite IBCs.

(a) The provisions in this section apply to composite IBCs intended to contain solids and liquids. To complete the marking codes listed below, the letter "Z" must be replaced by a capital letter in accordance with § 178.702(a)(2) to indicate the material used for the outer packaging. Composite IBC types are designated:

(1) 11HZ1 Composite IBCs with a rigid plastic inner receptacle for solids loaded or discharged by gravity.

(2) 11HZ2 Composite IBCs with a flexible plastic inner receptacle for solids loaded or discharged by gravity.

(3) 21HZ1 Composite IBCs with a rigid plastic inner receptacle for solids loaded or discharged under pressure.

(4) 21HZ2 Composite IBCs with a flexible plastic inner receptacle for solids loaded or discharged under pressure.

(5) 31HZ1 Composite IBCs with a rigid plastic inner receptacle for liquids.

(6) 31HZ2 Composite IBCs with a flexible plastic inner receptacle for liquids.

(b) Definitions for composite IBC types:

(1) A *composite IBC* is an IBC which consists of a rigid outer packaging enclosing a plastic inner receptacle together with any service or other structural equipment. The outer packaging of a composite IBC is designed to bear the entire stacking load. The inner receptacle and outer packaging form an integral packaging and are filled, stored, transported, and emptied as a unit.

(2) The term plastic means polymeric materials (i.e., plastic or rubber).

(3) A "rigid" inner receptacle is an inner receptacle which retains its general shape when empty without closures in place and without benefit of the outer casing. Any inner receptacle that is not "rigid" is considered to be "flexible."

(c) Construction requirements for composite IBCs with plastic inner receptacles are as follows:

(1) The outer packaging must consist of rigid material formed so as to protect the inner receptacle from physical damage during handling and transportation, but is not required to perform the secondary containment function. It includes the base pallet where appropriate. The inner receptacle is not intended to perform a containment function without the outer packaging.

(2) A composite IBC with a fully enclosing outer packaging must be designed to permit assessment of the integrity of the inner container following the leakproofness and hydraulic tests. The outer packaging of 31HZ2 composite IBCs must enclose the inner receptacles on all sides.

(3) The inner receptacle must be manufactured from plastic material of known specifications and be of a strength relative to its capacity and to the service it is required to perform. In addition to conformance with the requirements of § 173.24 of this subchapter, the material must be resistant to aging and to degradation caused by

ultraviolet radiation. The inner receptacle of 3IHZ2 composite IBCs must consist of at least three plies of film.

(i) If necessary, protection against ultraviolet radiation must be provided by the addition of pigments or inhibitors such as carbon black. These additives must be compatible with the contents and remain effective throughout the life of the inner receptacle. Where use is made of carbon black, pigments, or inhibitors, other than those used in the manufacture of the tested design type, retesting may be omitted if the carbon black content, the pigment content, or the inhibitor content do not adversely affect the physical properties of the material of construction.

(ii) Additives may be included in the composition of the plastic material of the inner receptacle to improve resistance to aging, provided they do not adversely affect the physical or chemical properties of the material.

(iii) No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of inner receptacles.

(iv) Composite IBCs intended for the transportation of liquids must be capable of releasing a sufficient amount of vapor to prevent the body of the IBC from rupturing if it is subjected to an internal pressure in excess of that for which it was hydraulically tested. This may be achieved by spring-loaded or non-reclosing pressure relief devices or by other means of construction.

(4) The strength of the construction material comprising the outer packaging and the manner of construction must be appropriate to the capacity of the composite IBC and its intended use. The outer packaging must be free of any projection that might damage the inner receptacle.

(i) Outer packagings of natural wood must be constructed of well seasoned wood that is commercially dry and free from defects that would materially lessen the strength of any part of the outer packaging. The tops and bottoms may be made of water-resistant reconstituted wood such as hardboard or particle board. Materials other than natural wood may be used for construction of structural equipment of the outer packaging.

(ii) Outer packagings of plywood must be made of well-seasoned, rotary cut, sliced, or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the casing. All adjacent plies must be glued with water-resistant adhesive. Materials other than plywood may be used for construction of structural equipment of the outer packaging. Outer packagings must be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

(iii) Outer packagings of reconstituted wood must be constructed of water-resistant reconstituted wood such as hardboard or particle board. Materials other than reconstituted wood may be used for the construction of structural equipment of reconstituted wood outer packaging.

(iv) Fiberboard outer packagings must be constructed of strong, solid, or double-faced corrugated fiberboard (single or multiwall).

(A) Water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO 535 (E) (IBR, see §171.7 of this subchapter). Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard must be firmly glued to the facings.

(B) The ends of fiberboard outer packagings may have a wooden frame or be constructed entirely of wood. Wooden battens may be used for reinforcements.

(C) Manufacturers' joints in the bodies of outer packagings must be taped, lapped and glued, or lapped and stitched with metal staples.

(D) Lapped joints must have an appropriate overlap.

(E) Where closing is effected by gluing or taping, a water-resistant adhesive must be used.

(F) All closures must be sift-proof.

(v) Outer packagings of plastic materials must be constructed in accordance with the relevant provisions of paragraph (c)(3) of this section.

(5) Any integral pallet base forming part of an IBC, or any detachable pallet, must be suitable for the mechanical handling of an IBC filled to its maximum permissible gross mass.

(i) The pallet or integral base must be designed to avoid protrusions that may cause damage to the IBC in handling.

(ii) The outer packaging must be secured to any detachable pallet to ensure stability in handling and transportation. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the IBC.

(iii) Strengthening devices, such as timber supports to increase stacking performance, may be used but must be external to the inner receptacle.

(iv) The load-bearing surfaces of IBCs intended for stacking must be designed to distribute loads in a stable manner. An IBC intended for stacking must be designed so that loads are not supported by the inner receptacle.

(6) Intermediate IBCs of type 31HZ2 must be limited to a capacity of not more than 1,250 L.

[Amdt. 178-103, 59 FR 38068, July 26, 1994, as amended by Amdt. 178-119, 62 FR 24743, May 6, 1997; 66 FR 45387, Aug. 28, 2001; 67 FR 61016, Sept. 27, 2002; 68 FR 75758, Dec. 31, 2003; 69 FR 54046, Sept. 7, 2004]

#### § 178.708 Standards for fiberboard IBCs.

(a) The provisions of this section apply to fiberboard IBCs intended to contain solids that are loaded or discharged by gravity. Fiberboard IBCs are designated: 11G.

(b) Definitions for fiberboard IBC types:

(1) *Fiberboard IBCs* consist of a fiberboard body with or without separate top and bottom caps, appropriate service and structural equipment, and if necessary an inner liner (but no inner packaging).

(2) *Liner* means a separate tube or bag, including the closures of its openings, inserted in the body but not forming an integral part of it.

(c) Construction requirements for fiberboard IBCs are as follows:

(1) Top lifting devices are prohibited in fiberboard IBCs.

(2) Fiberboard IBCs must be constructed of strong, solid or double-faced corrugated fiberboard (single or multiwall) that is appropriate to the capacity of the outer packaging and its intended use. Water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 grams per square meter (0.0316 pounds per square foot)—see ISO 535 (E) (IBR, see § 171.7 of this subchapter). Fiberboard must have proper bending qualities. Fiberboard must be cut, creased without cutting through any thickness of fiberboard, and slotted so as to permit assembly without cracking, surface breaks, or undue bending. The fluting of corrugated fiberboard must be firmly glued to the facings.

(i) The walls, including top and bottom, must have a minimum puncture resistance of 15 Joules (11 foot-pounds of energy) measured according to ISO 3036 (IBR, see § 171.7 of this subchapter).

(ii) Manufacturers' joints in the bodies of IBCs must be made with an appropriate overlap and be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joints are made by gluing or taping, a water-resistant adhesive must be used. Metal staples must pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.

(3) The strength of the material used and the construction of the liner must be appropriate to the capacity of the IBC and the intended use. Joints and closures must be sift-proof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and transport.

(4) Any integral pallet base forming part of an IBC, or any detachable pallet, must be suitable for the mechanical handling of an IBC filled to its maximum permissible gross mass.

(i) The pallet or integral base must be designed to avoid protrusions that

alternative types of primary receptacles identified in paragraph (i)(1) of this section, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the primary receptacles.

(3) *Variation 3.* Primary receptacles of any type may be placed within a secondary packaging and shipped without testing in the outer packaging provided all of the following conditions are met:

(i) The secondary and outer packaging combination must be successfully tested in accordance with paragraphs (a) through (h) of this section with fragile (e.g., glass) inner receptacles.

(ii) The total combined gross weight of inner receptacles may not exceed one-half the gross weight of inner receptacles used for the drop test in paragraph (d) of this section.

(iii) The thickness of cushioning material between inner receptacles and between inner receptacles and the outside of the secondary packaging may not be reduced below the corresponding thicknesses in the originally tested packaging. If a single inner receptacle was used in the original test, the thickness of cushioning between the inner receptacles must be no less than the thickness of cushioning between the outside of the secondary packaging and the inner receptacle in the original test. When either fewer or smaller inner receptacles are used (as compared to the inner receptacles used in the drop test), sufficient additional cushioning material must be used to fill the void.

(iv) The outer packaging must pass the stacking test in §178.606 while empty. The total weight of identical packages must be based on the combined mass of inner receptacles used in the drop test in paragraph (d) of this section.

(v) For inner receptacles containing liquids, an adequate quantity of absorbent material must be present to absorb the entire liquid contents of the inner receptacles.

(vi) If the outer packaging is intended to contain inner receptacles for liquids and is not leakproof, or is intended to contain inner receptacles for solids and is not sift proof, a means of containing any liquid or solid contents

in the event of leakage must be provided. This can be a leakproof liner, plastic bag, or other equally effective means of containment.

(vii) In addition, the marking required in §178.503(f) of this subchapter must be followed by the letter "U".

[Amdt. 178-97, 55 FR 52723, Dec. 21, 1990, as amended by Amdt. 178-111, 60 FR 48787, Sept. 20, 1995; 67 FR 53143, Aug. 14, 2002; 69 FR 54046, Sept. 7, 2004]

### Subpart N—IBC Performance-Oriented Standards

#### § 178.700 Purpose, scope and definitions.

(a) This subpart prescribes requirements applying to IBCs intended for the transportation of hazardous materials. Standards for these packagings are based on the UN Recommendations.

(b) Terms used in this subpart are defined in §171.8 of this subchapter and in paragraph (c) of this section.

(c) The following definitions pertain to the IBC standards in this subpart.

(1) *Body* means the receptacle proper (including openings and their closures, but not including service equipment), that has a volumetric capacity of not more than three cubic meters (3,000 L, 793 gallons, or 106 cubic feet) and not less than 0.45 cubic meters (450 L, 119 gallons, or 15.9 cubic feet) or a maximum net mass of not less than 400 kg (882) pounds.

(2) *Service equipment* means filling and discharge, pressure relief, safety, heating and heat-insulating devices and measuring instruments.

(3) *Structural equipment* means the reinforcing, fastening, handling, protective or stabilizing members of the body or stacking load bearing structural members (such as metal cages).

(4) *Maximum permissible gross mass* means the mass of the body, its service equipment, structural equipment and the maximum net mass (see §171.8 of this subchapter).

[Amdt. 178-103, 59 FR 38068, July 26, 1994, as amended by Amdt. 178-108, 60 FR 40038, Aug. 4, 1995; 66 FR 45386, 45387, Aug. 28, 2001]

#### § 178.702 IBC codes.

(a) Intermediate bulk container code designations consist of: two numerals

**§ 178.703**

specified in paragraph (a)(1) of this section; followed by the capital letter(s) specified in paragraph (a)(2) of this section; followed, when specified in an individual section, by a numeral indicating the category of intermediate bulk container.

(1) IBC code number designations are as follows:

Type	For solids, discharged		For liquids
	by gravity	Under pressure of more than 10 kPa (1.45 psig)	
Rigid .....	11	21	31
Flexible .....	13		

(2) Intermediate bulk container code letter designations are as follows:

- “A” means steel (all types and surface treatments).
- “B” means aluminum.
- “C” means natural wood.
- “D” means plywood.
- “F” means reconstituted wood.
- “G” means fiberboard.
- “H” means plastic.
- “L” means textile.
- “M” means paper, multiwall.
- “N” means metal (other than steel or aluminum).

(b) For composite IBCs, two capital letters are used in sequence following the numeral indicating IBC design type. The first letter indicates the material of the IBC inner receptacle. The second letter indicates the material of the outer IBC. For example, 31HA1 is a composite IBC with a plastic inner receptacle and a steel outer packaging.

[Amdt. 178–103, 59 FR 38068, July 26, 1994, as amended at 66 FR 45386, Aug. 28, 2001]

**§ 178.703 Marking of IBCs.**

(a) The manufacturer shall:  
 (1) Mark every IBC in a durable and clearly visible manner. The marking may be applied in a single line or in multiple lines provided the correct sequence is followed with the information required by this section in letters, numerals and symbols of at least 12 mm in height. This minimum marking size applies only to IBCs manufactured

after October 1, 2001). The following information is required in the sequence presented:

(i) The United Nations symbol as illustrated in §178.503(e)(1). For metal IBCs on which the marking is stamped or embossed, the capital letters ‘UN’ may be applied instead of the symbol.

(ii) The code number designating IBC design type according to §178.702(a). The letter “W” must follow the IBC design type identification code on an IBC when the IBC differs from the requirements in subpart N of this part, or is tested using methods other than those specified in this subpart, and is approved by the Associate Administrator in accordance with the provisions in §178.801(i).

(iii) A capital letter identifying the performance standard under which the design type has been successfully tested, as follows:

- (A) X—for IBCs meeting Packing Group I, II and III tests;
- (B) Y—for IBCs meeting Packing Group II and III tests; and
- (C) Z—for IBCs meeting only Packing Group III tests.

(iv) The month (designated numerically) and year (last two digits) of manufacture.

(v) The country authorizing the allocation of the mark. The letters ‘USA’ indicate that the IBC is manufactured and marked in the United States in compliance with the provisions of this subchapter.

(vi) The name and address or symbol of the manufacturer or the approval agency certifying compliance with subparts N and O of this part. Symbols, if used, must be registered with the Associate Administrator.

(vii) The stacking test load in kilograms (kg). For IBCs not designed for stacking, the figure “0” must be shown.

(viii) The maximum permissible gross mass or, for flexible IBCs, the maximum net mass, in kg.

(2) The following are examples of symbols and required markings:

(i) For a metal IBC containing solids discharged by gravity made from steel:





**APPROVAL CA2006040035**

**SECOND REVISION**

**ISSUED BY THE COMPETENT AUTHORITY OF THE UNITED STATES**

**EXPIRATION DATE: 31 JULY 2013**

1. **APPROVAL HOLDER:**      **PACKGEN CORPORATION**  
65 First Flight Drive  
P.O. Box 1970  
Auburn, Maine 04211
  
2. **REGULATORY AUTHORITY:** 49 CFR 178.601(h) - Approval of  
equivalent packagings.
  
3. **SYNOPSIS:** Packgen Corporation formerly Wrangler  
Corporation is authorized to manufacture, mark and sell a  
non-DOT standard Fiberboard Composite Intermediate Bulk  
Containers (IBC) marked UN11GW for transportation of solid  
hazardous materials in accordance with the provisions of  
this approval.
  
4. **BASIS:** This approval is issued in response to Packgen  
Corporation application dated 21 April 2008.
  
5. **PERIOD OF VALIDITY AND CONDITIONS OF APPROVAL:** This  
approval does not provide relief from any requirements of  
the Hazardous Materials Regulations except as stated  
herein. This approval is valid until the posted expiration  
date or until terminated by the Associate Administrator for  
Hazardous Materials Safety.
  - a. **Approved Materials:** Solid hazardous materials that are  
authorized to be transported in UN11HG Fiberboard Composite  
IBCs in accordance with IB Codes (IBC Codes) IB6, IB7, and  
IB8 in Table 1 under 49 CFR 172.102(c)(4), may be  
transported in packagings authorized under the terms of  
this approval.

b. Packaging: Packagings shall be fabricated as described below:

(1) The outer packaging shall consist of a minimum of one layer(s) of 1100 Mullen burst strength triple wall corrugated fiberboard. The fiberboard must be securely and completely laminated between an outer layer of coated woven polypropylene and an inner polyethylene lining.

(2) The fiberboard forming the vertical sidewalls shall form a continuous sleeve and the fiberboard may not have gaps between the sidewalls.

(3) The hazardous material must be contained in either: a flexible polyethylene inner receptacle (liner) or in a flexible inner receptacle (liner) manufactured from a material that is compatible with the hazardous material. Either receptacle configuration must meet the requirements specified in 49 CFR 178.707(c)(3). In addition, either receptacle configuration must have a minimum thickness of 6 mils and capable of being securely closed. The inner receptacle (liner) shall be so attached to the outer packaging as to form a secure and permanent attachment. The inner and outer packaging are to be filled, stored, transported, and emptied as a unit.

(4) During transportation the outer packaging must be securely attached to a pallet that provides complete protection of the base of the outer packaging.

(5) The IBC must have an upper cover consisting of a complete layer of polypropylene laminated fiberboard or a complete layer of fiberboard enclosing the inner receptacle.

(6) The walls of the IBC including the top and bottom, must meet the minimum puncture resistance requirements in § 178.708(c)(2)(i) of the HMR.

c. Testing: Design qualification testing and periodic requalification testing shall be as for a composite IBC except as follows:

(1) Bottom lift test. All IBC designs must be subject to the bottom lift test of § 178.811 of the HMR.

(2) Top lift test. If the IBC is intended to be top lifted, it shall be subject to the top lift test of § 178.812(b) (2) for flexible IBCs.

(3) Stacking Test. All IBCs must be subject to the stack test of § 178.815(C) (2) of the HMR, for composite IBCs of other than plastic materials.

d. Marking Requirements: Each package prepared under the provisions of this approval must be plainly marked with the approval number and the letter "W" following the package identification code of UN11HG2.

6. **MODES OF TRANSPORTATION AUTHORIZED**: Motor vehicle, rail and cargo vessel.

7. **SPECIAL PROVISIONS**:

a. This approval supersedes all previous approvals issued to Wrangler Corporation for the manufacture, mark and sale of UN11HH2 and UN11HH2W intermediate bulk containers.

b. A current copy of this approval must be maintained and made available for examination at each location where materials are packaged and offered for transportation.

c. Any person who offers for transportation or transports the above-described package(s) may do so under the authority of this approval if all requirements and conditions of this approval are met.

d. Any person who receives a package covered by this approval may reoffer it for transportation provided no modifications or changes are made to the package and it is reoffered for transportation in conformance with this approval.

e. A test report documenting satisfactory design qualification testing of IBCs manufactured in accordance with this approval must be on file with OHMEA prior to the sale of such IBCs.

f. IBCs meeting the terms of this approval and currently marked "UN11HH2" or "UN11HH2W" may continued to be used until the existing supply is exhausted. New manufacture is not permitted.

8. **GENERAL PROVISIONS:**

a. Failure by any person to comply with the terms and conditions of this approval and the Hazardous Materials Regulations, 49 CFR Parts 171-180 may result in the modification, suspension or termination of that person's authority to use this approval. Failure to comply may also subject that person to penalties prescribed by 49 U.S.C. §§ 5123 and 5124. This approval may be modified, suspended or terminated in its entirety if that action is justified in light of changes in circumstances or additional information not available when this approval was issued. Unless immediate modification, suspension or termination is necessary to avoid a risk of significant harm to persons or property, before action is taken, that person will be notified and provided with an opportunity to show why the proposed action should not be taken.

b. Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this approval must be provided training on the requirements and conditions of this approval in addition to the training required by §§ 172.700 through 172.704.

c. Any person operating under the terms of this approval must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

Issued in Washington, D.C.

Dated: 02/12/2009

A handwritten signature in blue ink, appearing to read "Wendy By", is written over a faint circular stamp.

For Theodore L. Willke  
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous  
Materials Safety, Pipeline and Hazardous Materials Safety  
Administration, Department of Transportation, Washington, D.C.  
20590. Attention: PHH-32.