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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Replacing GB 190-1990

Packing symbol of dangerous goods

危险货物包装标志

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Table of Contents

Foreword.....	3
1 Scope.....	5
2 Normative references.....	5
3 Symbol classifications.....	5
4 Dimensions and Colors of Symbols	15
5 Symbol Application Methods	15
Annex A (normative) Application Requirements for Marking and Labelling	17

Foreword

Chapter 3 and Chapter 4 of this Standard are mandatory; the rest are recommended.

This Standard is an adoption and modification of the United Nations “Model Regulations the Transport of Dangerous Goods” (15th Edition) “Part 5: Consignment Procedures - Chapter 5.2: Markings and Labelling”. The main technical differences in this Standard when compared to it:

- The pictorial symbols are described in table format;
- Content that does not concern symbol application has been deleted.

This Standard replaces GB 190-1990 “Labels for Packages of Dangerous Goods”. The main differences between this Standard when compared to GB 190-1990:

- The number of symbols for Explosive Substances has increased from the original 3 to 4;
- The number of symbols for Gaseous Substances has increased from the original 3 to 5;
- The number of symbols for Flammable Liquids has increased from the original 1 to 2;
- The number of symbols for Category 4 substances has increased from the original 3 to 4;
- The symbols for Class 5 substances, major changes to Organic Peroxide Oxidizing Substances;
- The number of symbols for Toxic Substances has decreased from the original 3 to 1;
- Fissionable Substances has been added to the symbols for Class 7 substances;
- 4 Marks has been added;
- Requirements for the applications of marking and labelling have been added (Annex A).

Annex A of this Standard is a normative appendix.

Packing symbol of dangerous goods

1 Scope

This Standard specifies the type figure, dimension, color and use method of the diagrammatic labels for packages of dangerous goods (hereinafter referred to as label).

This Standard is applicable to the transportation and package of dangerous goods.

2 Normative references

The provisions of the following documents become provisions of this Standard after being referenced. For dated reference documents, all later amendments (excluding corrigenda) and versions do not apply to this Standard; however, the parties to the agreement are encouraged to study whether the latest versions of these documents apply. For undated reference documents, the latest versions apply to this Standard.

GB/T 191, *Packaging and storage marks*

GB 6944, *Classification and Code of Dangerous Goods*

GB 11806-2004, *Regulations for the safe transport of radioactive material*

GB 12268, *List of dangerous goods*

3 Symbol classifications

The symbols are divided into Marks (see Table 1) and Labels (see Table 2). There are 4 Marks and 26 Labels, their pictures indicate the main characters of the 9 Classes dangerous goods.

Annex A

(normative)

Application Requirements for Marking and Labelling

A.1 Marking

A.1.1 Unless otherwise specified, the proper shipping name for the dangerous goods as determined in accordance with GB 12286 and the corresponding number, shall be displayed on each package. In the case of unpackaged articles, the marking shall be displayed on the article, on its cradle or on its handling, storage or launching device.

A.1.2 All package markings specified in A.1.1:

- a) Shall be readily visible and legible;
- b) Shall be able to withstand open weather exposure without a substantial reduction in effectiveness;
- c) Shall be displayed on a background of contrasting color on the external surface of the package;
- d) Shall not be located with other package markings that could substantially reduce their effectiveness.

A.1.3 Salvage packaging shall also be marked with the word "SALVAGE".

A.1.4 Intermediate bulk containers of more than 450L capacity and large packaging shall be marked on two opposing sides.

A.1.5 Special marking provisions for class 7:

- a) Special markings, transport units and packaging forms for Class 7 shall be in accordance with the provisions set out in GB 11806-2004;
- b) Each package shall be legibly and durably marked on the outside of the packaging with identification of either the consignor or consignee, or both;
- c) For every package (with the exception of packages specified in GB 11806-2004 that are excluded) shall be legibly and durably marked on the outside of the packaging with the number GB 12286 and the correct shipping name. In the case of excepted packages, only the GB 12286 number is required;

- d) Each package of gross mass exceeding 50 kg shall have its permissible gross mass legibly and durably marked on the outside of the packaging;
- e) A package which conforms to:
- A Type IP-1 package, a Type IP-2 package or a Type IP-3 package design, shall be legibly and durably marked on the outside of the packaging with "TYPE IP-1", "TYPE IP-2" OR "TYPE IP -3" as appropriate;
 - A Type A package design, shall be legibly and durably marked on the outside of the packaging with "TYPE A";
 - A Type IP-2 package, a Type IP-3 or a Type A package design, shall be legibly and durably marked on the outside of the packaging with the International Vehicle Registration Code (VRI Code) of the country of origin of design and either the name of the manufacturer or other identification of the packaging specified by the competent authority for transport of the country of origin of design;
- f) Each package which conforms to a design approved by the competent authority for transport shall be legibly and durably marked on the outside of the packaging with:
- The identification mark allocated to that design by the competent authority for transport;
 - A serial number to uniquely identify each packaging which conforms to that design;
 - In the case of a Type B (U) or Type B (M) package design, with "TYPE B (U)" or "TYPE B (M)";
 - In the case of a Type C package design, mark "TYPE C".
- g) Each package which conforms to a Type B (U), Type B (M) or Type C package design shall have the outside of the outermost receptacle which is resistant to the effects of fire and water plainly marked by embossing, stamping or other means resistant to the effects of fire and water with the trefoil symbol shown in the Figure A.1;
- h) Where LSA-I or SCO-I material is contained in receptacles or wrapping materials and is transported under exclusive use as permitted by the competent authority for transport, the outer surface of these receptacles or wrapping materials may bear the marking "RADIOACTIVE LSA-I" or "RADIOACTIVE SCO-I" as appropriate;
- i) In case of international transport of packages requiring the design or

- b) The environmentally hazardous substance mark shall be located adjacent to the markings required by A.1.1. The requirements of A.1.2 and A.1.4 shall be met;
- c) The environmentally hazardous substance mark shall be as shown in serial number 1 of Table 1. The marking dimensions of the packaging shall conform to the requirements of Table 3, except in the case of packages of such dimensions that they can only bear smaller marks. For transport units, the minimum dimensions shall be 250mm×250mm.

A.1.7 Application requirements of orientation arrows

- a) Except as provided in b):

- Combination packaging having inner packaging containing liquid dangerous goods;
- Single packaging fitted with vents;
- Cryogenic receptacles intended for the transport of refrigerated liquefied gases.

Shall be legibly marked with package orientation arrows shown in number 2 of Table 1, or with those meeting the specifications of GB/T 191. The orientation shall appear on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. They shall be rectangular and of a size that is clearly visible, proportionate to the size of the package. Depicting a rectangular border around the arrows is optional.

- b) Orientation arrows are not required on the packages below:

- Pressure receptacles;
- Dangerous goods in inner packaging of not more than 120 ml which are prepared with sufficient absorbent material between the inner and outer packaging to completely absorb the liquid contents;
- Division 6.2 infectious substances in primary receptacles of not more than 50 ml;
- Category 7 radioactive material in type B (U), type B (M) or type C packages;
- Articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.).

- c) Arrows for purposes other than indicating proper package orientation shall not be displayed on a package marked in accordance with this Standard.

A.1.8 Marking application for transport at an elevated temperature

When transport units are offered for transport, if it contains a liquid substance at a temperature equal to or exceeding 100°C; or a solid-state substance at a temperature equal to or exceeding 240°C, shall apply the mark shown in number 3 of Table 1 on each side and on each end. The mark shall be triangular shape, shall have sides of at least 250mm, and shall be shown in red.

A.2 Labelling

A.2.1 Labelling Provisions

A.2.1.1 These provisions relate essentially to classified labels of contents (shown in Table 2). However, additional markings or symbols indicating precautions to be taken in handling or storing a package (e.g. A symbol representing an umbrella indicating that a package shall be kept dry) may be appropriately displayed on a package.

A.2.1.2 Labels identifying primary and subsidiary risks shall conform to models No. 1 to No. 9 illustrated in Table 2. The “EXPLOSIVE” subsidiary risk label shall be model No. 1.

A.2.1.3 Where articles or substances are specifically listed in the Dangerous Goods List, a danger class label shall be affixed for the hazard shown in Column 4 of GB 12268. A subsidiary risk label shall also be affixed for any risk indicated by a class or division number in the Column 5 of the Dangerous Goods List. However, special provisions may also require a subsidiary risk label where no subsidiary risk is indicated in Column 5 or may be exempt from the requirement for a subsidiary risk label where such a risk is indicated in the Dangerous Goods List.

A.2.1.4 If a substance which meets the definition of more than one class is not specifically listed by name in the Dangerous Goods List in GB 12268, the provisions in GB 6944 shall be used to determine the primary risk class of the goods. In addition to the label required for that primary risk class, subsidiary risk labels shall also be applied as specified in the Dangerous Goods List.

Packages containing substances of Category 8 need not bear the subsidiary risk label model No. 6.1 if the toxicity arises solely from the destructive effect on tissue. Packages containing substances of Division 4.2 need not bear the subsidiary risk label model No. 4.1.

A.2.1.5 See Table A.1 for the labels for Category 2 gases with subsidiary risk (s).

exhibit explosive behavior.

A.2.1.11 Special provisions for the labelling of organic peroxides:

The Division 5.2 label in Table 2 (model No. 5.2) shall be affixed to packages containing organic peroxides classified as types B, C, D, E or F in GB 12268. This label also implies that the product may be flammable and hence no "FLAMMABLE LIQUID" subsidiary risk label (model No. 3) is required. In addition, the following subsidiary risk labels shall be applied:

- a) An "EXPLOSIVE" subsidiary risk label (model No. 1) for organic peroxides type B, unless the competent authority for transport has permitted this label to be dispensed with for specific packaging because test data have proved that the organic peroxide in such packaging does not exhibit explosive behavior;
- b) A "CORROSIVE" subsidiary risk label (model No. 8) is required when packing group I or II criteria of Category 8 are met.

A.2.1.12 Special provisions for the labeling of packages of infectious substances:

Except for the main hazard label (model No. 6.2), packages of infectious substances shall also be affixed with any other labels required by the nature of the contents.

A.2.1.13 Special provisions for the labelling of radioactive material:

- a) Except the circumstances which are for large freight containers and tanks specified in GB 11806-2004, each package, overpack and freight container containing radioactive material shall bear at least two labels which conform to the models No. 7A, No. 7B and No. 7C as appropriate according to the category (see Table 7 in GB 11806) of that package, overpack or freight container. Labels shall be affixed to two opposite sides on the outside of the package or on the outside of all four sides of the freight container. Each overpack containing radioactive material shall bear at least two labels on opposite sides of the outside of the overpack. In addition, each package, overpack and freight container containing fissile material shall bear labels which conform to model No. 7E; such labels, where applicable, shall be affixed adjacent to the labels for radioactive material. Labels shall not cover the specified markings. Any labels which do not relate to the contents shall be removed or covered.
- b) Shall conform to the provisions specified in GB 11806-2004; each label conforming to model numbers No. 7A, No. 7B, and No. 7C shall be completed with the following information:

appropriate, labels in Table 2 can be shown with a dotted outer boundary in accordance with the provisions in a) below. This is not required when the label is applied on a background of contrasting color:

- a) Labels shall be in the form of a square set at an angle of 45° (diamond-shaped), the dimensions shall conform to the provisions set out in 4.1, except in the case of packages of such dimensions that they can only bear smaller labels and as provided in b). There shall be a line which has the same color as the symbol, and is running parallel with the edge, the distance from the line to the edge is 5mm. Label shall be displayed on a background of contrasting color or shall have either a dotted or solid outer boundary line.
- b) Cylinders for Category 2 may, on account of their shapes, orientation and securing mechanisms for transport, bear labels representative of those specified in No. 2 of Table 2, the dimensions shall conform to the provisions set out in 4.1, however, in all cases, the labels representing the primary hazard and the numbers appearing on any label shall remain fully visible and the symbols recognizable.
- c) The label is divided into two halves - upper and lower - with the exception of Division 1.4, 1.5 and 1.6, where the upper half of the label shall contain the pictorial symbol and the lower half shall contain the text, the class or division number of the goods and the compatibility group letter as appropriate.
- d) Except for Division 1.4, 1.5 and 1.6, the lower half of the labels for Category 1 shows the division number and compatibility group letter for the substance or article. The upper half of the labels for Divisions 1.4, 1.5 and 1.6 shows the division number and in the lower half show the compatibility group letter. For Division 1.4, Compatibility Group S, no label is generally required. However, in cases where a label is considered necessary for such goods, it shall be based on model No. 1.4.
- e) On labels other than those for material of Category 7, the insertion of any text (other than the class or division number) in the space below the symbol shall be confined to particulars indicating the nature of the risk and precautions to be taken in handling.
- f) The symbols, text and numbers shall be shown in black on all labels except for:
 - The Category 8 label, where the text and class number shall appear in white;
 - Labels with entirely green, red or blue backgrounds where they may be

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