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**LIGHT INDUSTRY STANDARD OF
THE PEOPLE'S REPUBLIC OF CHINA**

QB/T 2490-2000

Polyethylene (PE) Extruded Sheets

聚乙烯 (PE)挤出板材

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Foreword

This standard is a revision to ZBG 33007-1989 *Polyethylene Extruded Sheets* (this standard has its number changed to be QB/T 3630-1999 by the Guo-Qing-Han [1999] No. 112 Document, with the contents remained the same). This standard is not equivalent to Deutsche Industry Norm DIN 16925-1987 *High-density Polyethylene (HDPE) Extruded Sheet: Technical Delivery Conditions*.

There have been some changes in this standard over the original one in the geometrical dimensions of tensile test pieces and simply supported beam impact test pieces; and the index of elongation at break is discarded.

This standard was proposed by the Business Management Division of State Bureau of Light Industry.

This standard shall be under the jurisdiction of the National Center for Standardization of Plastic Products.

This standard is responsibly drafted by Beijing Plastics Research Institute.

Main drafters of this standard: Yu Peilin, Liu Xiaohui.

The industry standard QB/T 3630-1999 *Polyethylene Extruded Sheets*, issued by the State Bureau of Light Industry, is annulled, from the implementation date of this standard.

Polyethylene (PE) Extruded Sheets

1 Scope

This standard specifies the product classification, requirements, test methods, test rules, marking, packaging, transport, and storage of extruded polyethylene sheets.

This standard is applicable to the sheets shaped by extruded polyethylene resins (hereinafter called "sheets").

2 Normative references

The following normative documents contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision; the parties who reach an agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

GB/T 1033-1986 Test method for density and relative density of plastics

GB/T 1040-1992 Plastics - Determination of tensile properties

GB/T 1043-1993 Plastics - Determination of Charpy impact strength of rigid materials

GB/T 2828-1987 Sampling procedures and tables for lot-by-lot inspection by attributes (apply to inspection of successive lots or batches)

GB/T 5009.60-1996 Method for analysis of hygienic standard of products of polyethylene polystyrene and polypropylene for food packaging

GB 9687-1988 Hygienic standard for polyethylene products used as food containers and tablewares

3 Product classification

Sheets are divided into two categories according to density:

Low-density sheets: $0.919\text{g/cm}^2 \sim 0.925\text{g/cm}^3$;

High-density sheets: $0.940\text{g/cm}^2 \sim 0.960\text{g/cm}^3$

5 Test methods

5.1 Sampling

For rolled sheet sampling, it shall discard the surface layer; while preparing samples, the distance from the samples to the sheet edge shall be not less than 50mm.

5.2 Sample conditioning and standard test environment

The samples shall be placed in the environment at a temperature of $(23\pm 2)^{\circ}\text{C}$ for more than 16h; and conduct the test under such condition.

5.3 Visual inspection

Conduct visual inspection to 1m^2 sheets under normal natural light.

5.4 Thickness determination

Use a measuring instrument, accurate to 0.02mm, to measure three points at even-intervals, in the direction along the width of a sheet; the measuring points at ends shall be 20mm away from the edges of the sheet.

5.5 Width and length determination

Measure with a steel tape, accurate to 1mm.

5.6 Determination of diagonal difference

Measure the difference between the two diagonals of a sheet that is 1000mm long, accurate to 1mm.

5.7 Density determination

Measure according to 4.1.3.2 in GB/T 1033-1986.

5.8 Determination of tensile yield strength

Measure according to GB/T 1040; use Type I samples at a test speed of 50mm/min.

5.9 Inspection of hygienic requirements

Determine according to GB/T 5009.60.

5.10 Determination of simply supported beam impact strength

Measure according to GB/T 1043; use Type A notched specimen of Type I sample, with the pendulum impacting energy as 4J.

6.2 Factory inspection

Factory inspection includes the items in 4.1, 4.2, and table 2 in 4.3; it can also be agreed upon between the seller and the buyer.

6.3 Type inspection

The type inspection includes all the technical requirements in Chapter 4 in this standard. They shall be tested at least once a year.

A type inspection shall be made in case of one of the following situations.

- a) When trial identification appraisal is made for new products or old products are transferred to another plant for production;
- b) When it may affect the product properties due to major changes in, for example, structure, material, and process after formal production;
- c) When production recovers after a long-time shutdown;
- d) When there are significant differences between the factory inspection results and the last type inspection results;
- e) When national quality supervision agencies require to make a type inspection.

6.4 Sampling

6.4.1 The appearance and specifications adopt single sampling inspection plan according to GB/T 2828 and are based on general inspection level I. The acceptable quality level AQL is 6.5, as required in Table 4. The unit of test pieces is piece.

6.5.2 The inspection of physical and mechanical properties shall be conducted on a sheet taken from the samples at random.

Table 4

Lot range N	Sample size n	Acceptance number A_c	Rejection number R_c
26~150	8	1	2
151~280	13	2	3
281~500	20	3	4
501~1200	32	5	6
1201~3200	50	7	8
3201~10000	80	10	11
10001~35000	125	14	15
> 35000	200	21	22

6.5 Judgment rules

For 4.1 and 4.2, it can be decided according to Table 4. In case one of the rest items fails to meet the standard, then double samples can be taken from the original lot for re-inspection; if it still fails to meet the standard, then this lot is deemed as unacceptable.

7 Marking, packaging, transport, and storage

7.1 Marking

Every package shall be accompanied with a certificate, which includes:

- a) names of product and manufacturer;
- b) product specifications;
- c) date of production, lot, and net weight;
- d) product trademark and inspector code;
- e) adopted standard number.

7.2 Packaging

Flake sheets are packaged with gunny bags, boxes, or other materials; the mass of every box is not more than 100kg.

Rolled sheets shall be curled and bound with bundling ropes at both ends, and then packaged with plastic film; the mass of every box is not more than 50kg.

7.3 Transport

The product shall be free of contamination, pressure, collision, and sunshine, rain; the package shall be intact and complete.

7.4 Storage

The product shall be stored in a dry and clean room or a warehouse at appropriate temperature. The product shall be at least 1m away from heat source in storage.

The storage period shall not be more than two years from the date of production.

_____ **END** _____